# THE LANCET.

**A Journal of British and Foreign Medicine, Surgery, Obstetrics, Physiology, Chemistry, Pharmacology, Public Health, and News.**

TELEGRAPHIC ADDRESS— LANCET, LONDON

[*ONE HUNDRED AND SIXTY PAGES.*]

TELEPHONE NUMBER— 5356 GERRARD

No. XXIV. OF VOL. II., 1908. No. 4450. Vol. CLXXV. LONDON, SATURDAY, DECEMBER 12, 1908. PRICE 7d.; POST FREE, 7½d. [Pp. 120+40.



ROYAL SOCIETY OF MEDICINE.
SECTIONS: Clinical, Dermatological, Electro-therapeutical, Epidemiological, Laryngological, Medical, Neurological, Obstetrical and Gynæcological, Odontological, Otological, Pathological, Surgical, Therapeutical and Pharmacological, Anæsthetics, Disease in Children. DIARY of MEETINGS on page 1794.

NOTICE.

THE MEDICAL DIRECTORY.

*The volume for 1909 (65th annual issue) will be forwarded to Subscribers on Dec. 16th. It will be ready for general sale on Dec. 18th, price 15s. net (carriage 6d.).*

J. & A. Churchill, 7, Great Marlborough-street, London.

NOW READY. PRICE 14s. NET.

SQUIRE'S COMPANION

(EIGHTEENTH EDITION)

1864—1908.

J. & A. Churchill, 7, Great Marlborough-street, London, W.

For further particulars see page 7.

Now Ready. Demy 8vo. Pp. viii.+344. Price 5s. net.

PHYSIOLOGICAL PRINCIPLES in TREATMENT. By W. LANGDON BROWN, M.A., M.D., Demonstrator of Physiology and Morbid Anatomy, St. Bartholomew's Hospital. London: Baillière, Tindall & Cox, 8, Henrietta-street, Covent Garden.

Now Ready. Fifth Edition. 408 pp. Price 2s. 6d. net.

HANDBOOK for ATTENDANTS on the INSANE. Issued by the authority of the Medico-Psychological Association. Entirely rewritten and rearranged with a number of new illustrations. London: Baillière, Tindall & Cox.

Now Ready. Pp. xviii.+391, with 67 Illustrations and 9 Charts. Price 10s. 6d. net.

MENTAL DEFICIENCY. By A. F. TREDGOLD, L.R.C.P. Lond., M.R.C.S. Eng., Medical Expert to the Royal Commission on the Feeble-Minded, &c. London: Baillière, Tindall & Cox, 8, Henrietta-street, Covent Garden.

GOUT: Its Pathology, Forms, Diagnosis, and Treatment.

By ARTHUR P. LUFF, M.D., B.Sc., F.R.C.P., Physician to St. Mary's Hospital.

Third Edition, Revised and Enlarged. 10s. 6d. net.

Cassell & Co., Ltd., London, and all Booksellers.

THE CURE OF THE MORPHIA HABIT WITHOUT SUFFERING.

By OSCAR JENNINGS, M.D. Paris, M.R.C.S. Eng.

"Contains the pith of a wide experience; full of practical hints; very pleasantly written. A work we can heartily recommend to the study of those who desire to relieve their patients of the thraldom of this terrible habit."—THE LANCET.

London: Baillière, Tindall & Cox. Second Edition, price 3s. 6d. net.

Price 2s. 6d. net.

MOUTH-BREATHING and its RELATION to DISEASES of the THROAT, NOSE, EAR, and ACCESSORY CAVITIES.

By MAYO COLLIER, M.S.Lond., F.R.C.S.Eng., Senior Surgeon to the North-West London Hospital; late President of the British Laryngological, Rhinological, and Otological Association.

By SAME AUTHOR. Price 2s. net.

CHRONIC PROGRESSIVE DEAFNESS: Its Causation and Treatment.

London: Baillière, Tindall & Cox, 8, Henrietta-street, Covent Garden.

Works by GEORGE HERSCHELL, M.D. Lond.

Third Edition. Demy 8vo. Price 5s. net. By post 5s. 4d.

INDIGESTION: The Diagnosis and TREATMENT OF THE FUNCTIONAL DERANGEMENTS OF THE STOMACH.

Just Published. Second Edition. Demy 8vo. Price 1s. 6d. net. By post 1s. 9d.

THE DIAGNOSIS OF CANCER OF THE STOMACH. With Special Reference to its Recognition in an Early Stage.

H. J. Glaisher, 57, Wigmore-street, W.

With Plates, Extra Demy 8vo, 4s.

CATARRHAL FEVERS: Commonly called COLDS. Their Causes, Consequences, Control and Cure. By R. PROSSER WHITE, M.D. Edin., M.R.C.S. Eng., Life Vice-President and Honorary Medical Officer, Royal Albert Edward Infirmary, Wigan, &c. London: H. K. Lewis, 136, Gower-street, W.C.

Just published, demy 8vo, with Illustrations, 7s. 6d.

STUDIES in PUNCTURE FLUIDS.

A CONTRIBUTION TO CLINICAL PATHOLOGY.

By O. C. GRUNER, M.B., Clinical Pathologist, General Infirmary, Leeds, &c.

"Must for some time be the authoritative work on the peculiarly complex and intricate subjects on which it treats."—BRITISH JOURNAL OF TUBERCULOSIS.

London: H. K. Lewis, 136, Gower-street, W.C.

INFECTED EARS (Intrameatal Treatment). By F. FAULDER WHITE, F.R.C.S. 5s.

"Should school clinics become developed, those in charge will have an opportunity of judging of the final results achieved by 'otectomy' lines of treatment as compared with modified mastoid procedures. No medical man could now condone non-treatment of running ears."—THE SCHOOL DOCTOR.

Celtic Press, 43, Chancery-lane, W.C.

SAUNDERS' NEW BOOKS.

BONNEY'S PULMONARY TUBERCULOSIS.

Read the Extract from THE LANCET REVIEW,

Saunders' Advertising Page 3.

THE PRESCRIBER.

A MONTHLY JOURNAL dealing with the NEWER REMEDIES. Subscription for 1909, 5s. (if paid *now*, 3s. 6d.), "Prescriber" Publishing Office, 137, George-street, Edinburgh.

DAVIDSON'S BULLETIN of NOVELTIES. Issued periodically. October Number now ready. Chief items: Spectacles for the Partially Blind and Special Portable Set Electrical Appliances for Examination of Eye, Ear, Nose, Throat; Transilluimination of Sclera, Antrum and Sinuses; Cautery; £8 8s. Post free from F. Davidson & Co., 29, Great Portland-street, London, W.

THE FOOD FACTOR in DISEASE. Including the Pathology and Treatment of Bilious Attacks, the Paroxysmal Neuroses (Migraine, Asthma, Angina Pectoris, &c.), Gout, High Blood-pressure, &c. By FRANCIS HARE, M.D., Consulting Physician, Brisbane Hospital. For abstract see THE LANCET review—Feb. 17th, 1906, pp. 453 to 455.—Longmans, Green & Co. In two volumes. Price 30s. net.

UTERINE FIBROIDS.

By BEDFORD FENWICK, M.D., Gynæcologist to The Hospital for Women, Soho-square; formerly Senior Assistant Physician to the City of London Hospital for Diseases of the Chest.

"Dr. Fenwick's results are remarkably good."—THE LANCET.

Price 3s. 6d. post free.

By the same Author.

COMMON COMPLAINTS of WOMEN.

"Eminently practical."—THE MEDICAL TIMES.

3s. 6d. post free.

E. H. Blakeley, 11, Adam-street, Strand, London, W.C.

By W. ARBUTHNOT LANE, M.S.

OPERATIVE TREATMENT of FRACTURES

Demy 4to. 7s. 6d.

THE OPERATIVE TREATMENT of CHRONIC CONSTIPATION.

Uniform with above. 2s. 6d.

CLEFT PALATE and HARE LIP.

Uniform with above. 5s.

The Medical Publishing Company, Ltd., 22½, Bartholomew Close, E.C.

# Re: BROMURAL

(α-Monobrom-isovalerianyl-urea.)

Though BROMURAL creates a quiet state of the nerves, whereby the necessary restful sleep is attained, it cannot be given in lieu of the direct and prompt-acting hypnotics, but simply as a harmless

**POWERFUL NERVE SEDATIVE**

As such its action supersedes many times that of the Bromides without showing the slightest injurious by- or after-effects. It is especially efficacious in all forms of nervous excitability and insomnia associated with mental overwork, hysteria, nervous dyspepsia. It is quickly eliminated from the body, and 5–10 grains might therefore be given several times during the day.

KNOLL & CO., 8, HARP LANE, LONDON, E.C.

"SANITAS"

# DISINFECTANTS

We are prepared to supply

"SANITAS OKOL" FLUID of guaranteed co-efficiencies 20 to 22.

"SANITAS BACTOX" ,, (*B. typhosus* test). 10, 14, 16 and 20, (as may be ordered).

"SANITAS FLUID" is the Standard Disinfectant and Antiseptic Wash for use in Sick Rooms, Nursing, Gynæcology and Midwifery Practice. A combined Germicide and Oxidant.—*(See Bacteriological Report by Dr. John C. Thresh.)* Also

"SANITAS SULPHUR CANDLES" (Kingzett's Patents)

"SANITAS FORMIC FUMIGATORS" for wet Formic Fumigation (Kingzett's Patents).

"SANITAS FORMIC LAMPS" for volatilising Formic Tablets.

"SANITAS" Disinfectant Floor and Furniture Polishes," in forms to suit all purposes, as used in many of the largest Hospitals, Workhouses, &c.

DISINFECTANT FLUIDS, POWDERS, and SOAPS of all kinds, &c.

THE "SANITAS" COMPY., LTD., LIMEHOUSE, LONDON, E.

"The Food Par Excellence For a Tired Stomach."

# Valentine's Meat-Juice

IN PNEUMONIA, PHTHISIS AND INFLUENZA.

Where a powerful and energetic nourishment is required in a concentrated, rapidly assimilated form, easily administered and readily tolerated, when other forms of food fail, Valentine's Meat-Juice is employed by well known practitioners throughout the world.

**Prof. Dr. M. Litten,** *Lecturer on Internal Medicine, University of Berlin, and Director of the City Hospital, Berlin, Germany.* "I have employed Valentine's Meat-Juice with patients suffering from Tuberculosis and observed excellent results from its use. I have also used it with good results in the treatment of patients with Anæmia, as well as those convalescent from acute diseases."

**O. B. Douglas, M. D.,** *Ex-President Medical Society, County of New York; Professor Diseases of Nose and Throat; New York Post-Graduate Medical School and Hospital.* "I have been ill with Influenza and used Valentine's Meat-Juice when nothing else seemed to be relished. I consider this an assurance of my confidence in it."

Physicians are invited to send for brochures containing clinical reports.

For sale by European and American Chemists and Druggists.

VALENTINE'S MEAT-JUICE COMPANY,
RICHMOND, VIRGINIA, U. S. A.

# Three Lectures
ON THE
# PATHOLOGY AND TREATMENT OF DIABETES MELLITUS, VIEWED BY THE LIGHT OF PRESENT-DAY KNOWLEDGE.

*Delivered before the Royal College of Physicians of London*

BY F. W. PAVY, M.D. LOND., LL.D. GLASG., F.R.S.,

CONSULTING PHYSICIAN TO GUY'S HOSPITAL; HONORARY PHYSICIAN TO KING EDWARD VII. HOSPITAL.

## LECTURE III.[1]

*Delivered on Nov. 24th.*

MR. PRESIDENT, COLLEAGUES, AND GENTLEMEN,—I will now give attention to the sugar that may fail to be assimilated at the seat of absorption. There are grounds for considering that, in the absence of any large ingestion of carbohydrate food, it becomes mainly disposed of at the seat of absorption. What, however, escapes being here dealt with, passes to the liver, and becomes checked from further progress by being taken into the cells and converted into glycogen. Thus the liver constitutes a second line of defence against the flow of absorbed sugar into the systemic circulation, obviating the production of more or less glycosuria that would otherwise ensue if the sugar flowed on instead of being stopped.

There is nothing in the

STOPPAGE OF SUGAR AND ITS CONVERSION INTO GLYCOGEN BY THE LIVER

cells but what is comparable to the effect that is capable of being produced by the agency of the living cells of yeast. By intracellular enzyme agency, condensation or synthesis of the sugar molecules with the elimination of water is evoked in like manner as is known elsewhere to occur, and the product constitutes a store ready to be drawn upon as need may arise.

It does not fall within the scope of the matter in hand to enter into the question of the transformation of carbohydrate into fat, but it may be stated that doubtless the liver performs a steatogenic office. It now stands as an established point that carbohydrate may constitute a source of fat, and the *foie gras* derived from the goose may be taken as affording an illustration of the liver being capable of functioning in this direction. The point to claim consideration is to see how the storage of carbohydrate under the form of glycogen in the liver can be transported to the seat of utilisation in the tissues without passing as free sugar, and thereby being placed in a position to flow off with the urine. We learn from Bernard's puncture of the fourth ventricle, that if glycogen does actually escape from the liver in the form of sugar, the fact is revealed through the production of glycosuria, varying in intensity according to the amount present in the organ.

The glycogen of the liver constitutes simply a storage of carbohydrate derived from the food, and responds in amount to that of the sugar that may happen to be reaching the organ through the portal vein. There is nothing unintelligible connected with it. Its accumulation runs strictly in line with that occurring in unicellular organisms, of which yeast may be adduced as an illustration. It is open to common observation to find in living nature that redundant carbohydrate, wherever existing, is put for storage into a form like that of glycogen, starch, cellulose, &c., in which form it steadily remains till a demand for it arises, when enzyme action is brought into play, and it is broken down into suitably adapted molecules for appropriation to the purpose needed.

Glycogen is known to be a body of wide distribution in the various textures throughout the animal organism. Viewed in the manner represented, its origin is readily to be accounted for. Let it be supposed that carbohydrate is taken on by a biogenic molecular complex. If employed in the production of energy, it will be consumed and disappear, If not, and the supply of carbohydrate is kept up, it will be cleaved off and stored up under the form of glycogen.

The operation is analogous to what occurs in the case of fat.

FAT SIMILARLY ENTERING THE MOLECULAR COMPLEX,

if utilised will disappear, whilst if not utilised, may be thrown off and stored, accounting for the fat granules and globules discoverable in cells on microscopic examination. The term fatty degeneration is ordinarily applied to this condition, and it is viewed as pathological, but it is in truth representative of a widely occurring physiological operation, It is true, it may occur under circumstances where cell action has been interfered with by a damaged cell state. Here, certainly, it may be regarded as falling within the domain of pathology. Muscular growth in response to increased muscular work is truly a physiological phenomenon, but when the work which gives rise to the growth is of an abnormal nature, as, for instance, in the case of the heart under the influence of valvular disease or arterial sclerosis, the condition falls under the name of hypertrophy, and is regarded as pathological, although the line of action is the same. Thus, a line of action which may be claimed as pathological may be based upon a physiological operative procedure.

The gist of what I am endeavouring to urge is that it is within the protoplasmic molecular complex that the play of changes takes place which gives rise to the phenomena of life; that carbohydrate, fat, nitrogen-containing matter, and, in addition, oxygen enter this complex; that the interactions occurring are attended with energy production through the instrumentality of oxidation as a final result, and that when it happens that the oxidisable supply is taken on in excess of consumption by oxidation, it is cleaved off as storage material under the form of glycogen in the one case, and of fat in the other, and thus circumstanced, it is available for subsequent utilisation when demand for it may exist. What is observed to occur in connexion with the leucocytes of the blood, and with muscular fibres, stands in illustration of the two kinds of cleavage spoken of.

Glycogen, then, is to be regarded as simply a reserve of carbohydrate material, ready, as in the case of fat reserve, to be drawn upon and utilised when it becomes wanted. Its special accumulation in the liver is to be accounted for by the position in which the organ stands in relation to food-supply. The main purposes to which it becomes applied are bioplasmic growth and energy production. For the latter, the chief seat of utilisation is in the muscles, and here the storage amount present is found to be in a great measure dependent on the rate of usage. With limb muscles deprived of activity by nerve section or tendon division, observation has shown that a larger accumulation is met with than in the muscles of the other limb left intact. Conversely, observation has likewise shown that under exercise, as, for instance, when a muscle is tetanised, a decrease of glycogen takes place.

Külz showed by his experiments on previously well-fed dogs, that under very forced exercise, glycogen might be made almost completely to disappear from the muscles and the liver in about six to seven hours. As far as the muscles are concerned, the glycogen is lying close at hand and has simply to be taken by the bioplasmic material that uses it up. I consider it must be assumed that, as in the case of starch in the vegetable kingdom, the glycogen molecule requires to be broken down into sugar molecules before passing into the molecular complex in which consumption takes place, and it may be reasonably inferred that, in accord with what is commonly noticeable, there is concerted enzyme action set into play to bring about what is required.

With regard to the glycogen in the liver, which, as seen, equally disappears, this is seated at a distance from where utilisation occurs, and the point now to be considered is how it becomes transported from one spot to the other and meanwhile escapes being placed in a position to show itself in the urine. We know when it happens, as after Bernard's puncture of the fourth ventricle, that the glycogen passes into the blood in the form of free sugar, the fact is revealed through the medium of the urine, but we have no disclosure recorded of any glycosuric effect having been produced by forced exercise, notwithstanding the short period within which the liver has been found to have become emptied of its glycogen.

[1] Lectures I. and II. were published in THE LANCET of Nov. 21st (p. 1499) and 28th (p. 1577), 1908, respectively.

The problem, then, now before us is, how is the transport service carried on between the seat of glycogen accumulation in the liver and the seat of utilisation in the tissues, without leading to any show of its occurrence through the detectable appearance of sugar?

I have dealt with this matter in my "Carbohydrate Metabolism and Diabetes" (p. 68), and have suggested that the

TRANSPORT IS EFFECTED BY THE GLYCOGEN MOLECULES BECOMING IN THE FIRST INSTANCE BROKEN DOWN

by enzyme action, just as occurs with starch molecules in the vegetable kingdom, into molecules of sugar, and then that these sugar molecules become linked on as side-chains to protein molecules and thus conveyed in a locked-up, large molecular state to the tissues, where they become taken off according as they are wanted.

This is nothing more than what happens in the ordinary course of chemical procedure. I have previously spoken about side-chains being taken on to a central ring or nucleus, and the capability of their being afterwards withdrawn without disruption of the nuclear body. The matter resolves itself into a question of the strength of affinity operating in one direction or the other. So it may be with sugar molecules linked on to a molecular blood complex. If they should be brought under the influence of a tissue complex in want of them, and thereby possessing a stronger affinity for them, it is only in the natural order of things that they should pass from the one to the other.

The train of phenomena would be that as the side-chains of the complex tissue molecules become worked off, they require to be replaced by fresh side-chains from the blood, and, in turn, the removal of these side-chains creates a demand which leads to the storage being drawn upon. Now, if the storage, as in the case of glycogen, is not of a nature to be adapted for shifting its position, it must of necessity be placed in a suitable condition for doing so. Here comes in the requirement for enzyme action, and it is suggested that as the storage is wanted, provision is made, through enzyme agency, for its supply in a form to meet what is needed.

Viewing matters in this way, the

SIDE-CHAIN WANT IN THE BLOOD LEADS TO THE STORAGE GLYCOGEN BEING

put into a suitable state to fill the void, and thus circumstanced, the carbohydrate becomes transported from the seat of accumulation in the liver to the seat of utilisation in the tissues without passing in a state to run off with the urine, as, in the free small molecular state of sugar, it would otherwise do in proportion to its extent of presence in the blood.

The idea here broached stands in conformity with the accepted view of what occurs in connexion with the transport of oxygen. Hæmoglobin is the agent concerned in the process. Taking on oxygen in the lungs, it travels as oxyhæmoglobin to the tissues, and gives up the oxygen that is needed to replace that which has been consumed in the bioplasmic molecules. Thus unloaded and made ready for recharging, the hæmoglobin is conveyed back to the lungs, where a fresh intake of oxygen occurs. Thus the round is effected by the capacity possessed by hæmoglobin of taking oxygen into chemical union of a sufficiently feeble nature to permit of its being subsequently dissociated to meet the demand of the tissues. I urge that we have here a parallel of what occurs in the case of the transport of carbohydrate from the seat of accumulation in the liver to that of utilisation in the tissues.

In this transport of carbohydrate I have assumed that it passes in the form of a side-chain linked on to a large moleculed constituent of the blood. As yet we have no distinct evidence before us to show what this constituent really is. Probably it is of a protein nature, and if so, we have material at hand to open out a consistent train of reasoning of much interest and importance standing at the root of what is being dealt with. Let me enter into particulars and expound what I refer to.

What is wanted for transport service is that the

CARBOHYDRATE SHOULD BE LOOSELY LINKED ON TO THE CARRYING MOLECULE,

so as to be susceptible of being disjoined without involving the disruption of the molecule itself. Evidence, as we shall see, is producible attesting the existence of such a state. At the same time, let me say that evidence is also producible having the effect of showing the existence of carbohydrate in another state in the molecule—in a state so closely locked-up as not to be susceptible of liberation apart from the disintegration of the molecule. Both points, it will be found, have important practical bearings connected with them.

That the existence of carbohydrate in a loosely combined and in a firmly locked-up state in a molecule is no mere hypothesis is capable of being made manifest by what is seen when amygdalin is exposed to different kinds of enzyme action. A molecule of amygdalin has two molecules of carbohydrate within it. When subjected to the action of glucase, the ferment which transforms maltose into glucose, a molecule of glucose is split off without the production of any further effect, which means that the other molecule is left untouched. In contact with emulsin, however, both molecules are liberated, with benzoic aldehyde and hydrocyanic acid as associated products. The conclusion to be drawn from these results is that the two carbohydrate molecules within the amygdalin molecule are differently placed—that one is in a position to be easily detached without leading to other disturbance, whilst in the case of the other, its liberation involves molecular disruption as an attendant phenomenon.

A study of the effects of

PHLORIDZIN AFFORDS IMMENSE HELP IN UNRAVELLING

the intricacies of the question that is being considered, and it points in a very decisive manner to the existence of carbohydrate within the molecular complex, as a side-chain attachment on the one hand, and in a locked-up state in the nuclear centre on the other. It, moreover, goes further, and gives grounds for associating the side-chain attachment with transport service, leaving the locked-up portion as constituting a component incorporated during the construction of the molecule, whether in lymphocyte growth from food, or in bioplasmic growth elsewhere.

Phloridzin, as is well known, is an active producer of glycosuria, and its action in this direction is exerted through the coöperation of the blood and the renal cells. The sugar does not, as in other forms of glycosuria, take origin elsewhere and travel to the kidney preparatory to elimination, but comes into view during the act of secretion of the urine, and in the absence of the kidneys phloridzin fails to produce any visible effect within the system. It is obvious, therefore, that some constituent of the blood other than sugar must be concerned in the production of the glycosuria. The output of sugar is sufficiently large and continuous to show that there must be something to feed the blood to keep up the discharge occurring, and, coincidently with the outflow, it is noticed that a disappearance of storage glycogen occurs. Indeed, phloridzin supplies us with one of the most effective means of rapidly clearing away glycogen from the liver and the muscles.

That the blood is fed in the way suggested is supported by the

EVIDENCE DERIVABLE FROM LIVER ABLATION EXPERIMENTS.

It is possible for the life of an animal to be maintained for some hours after the removal of the liver and its associated viscera in the abdomen. In a paper published in the *Journal of Physiology*[2] "On the Mechanism of Phloridzin Glycosuria" by Pavy, Brodie, and Siau, results are given which show that the sugar elimination declines after phloridzin injection at an infinitely greater rate in the liver ablation experiments than in control experiments where the viscera in question were left intact. It further appeared, when the sugar elimination had almost completely stopped, that a fresh start was given to it by transfusing into the vessels defibrinated blood derived from another animal.

Taking the fact that glycogen, as a result of phloridzin administration, disappears from its seats of accumulation, and that sugar contemporaneously shows itself in the urine, let us follow the matter on and see what the fact mentioned leads up to. The glycogen itself does not travel to the kidney and there constitute the source of the sugar that springs into view. As a first step in the operation occurring, it is not permissible to do otherwise than conceive that the

[2] Vol. xxix., 1903.

glycogen molecules must be broken down into molecules of sugar. Now comes the important point bearing upon what next transpires. The condition is unassociated with hyperglycæmia, but hyperglycæmia should be present if the sugar molecules passed as such into the blood. It seems to me that we are driven to the conclusion that the sugar molecules must enter into combination with a constituent of the blood and then become set free again by the influence brought to bear when the kidney is reached. If a transport of sugar in one way or another occurs, as the evidence before us denotes it does, and it is not effected by passage in a free state, the only inference to be drawn is that the sugar is thrown out of sight by entering into a combined state.

Physiologists accept this

EXPLANATION OF THE PHENOMENON OF TRANSPORT

connected with phloridzin glycosuria. If admitted here, why should it not be equally admitted as applicable to what happens in connexion with the ordinary occurrences of life? Forced exercise leads to a rapid emptying of the liver of its glycogen, without producing any show of the passage of sugar through the circulation in a free state. If the sugar goes into combination in the one case, why should it not do so in the other? The circumstances stand in reality upon an analogous footing. The abstraction of carbohydrate from the blood to compensate for its consumption in the muscles during forced exercise, will create a demand for its replenishment, and thence lead to the store of glycogen in the liver being drawn upon. In the case of phloridzin glycosuria, the outflow of sugar that occurs in the kidney will, similarly to forced exercise, draw off carbohydrate and give rise to a demand for reinstatement from the glycogen store. The line of procedure is the same in the two cases, but the initial condition that leads to the demand for the replenishment of carbohydrate in the blood is different.

Support is given to the view that has been set forth by the modified

CONDITIONS BELONGING TO PANCREATIC GLYCOSURIA.

Here hyperglycæmia precedes the glycosuria. The disappearance of glycogen occurs just as in phloridzin glycosuria, but the source of disappearance is conversion into sugar at the seat of storage. The kidney simply eliminates the sugar that is conveyed to it in the blood, and if the elimination is prevented by extirpation of the kidneys, the sugar goes on increasing, with the result of exceedingly high percentages having been noticed. The abnormality proceeds from a local transformation of glycogen into sugar, which recognisably passes into the blood in a free state, and subsequently flows off with the urine.

The instance that has been cited in reality shows what occurs when sugar from vanishing glycogen reaches the blood in a free state. In phloridzin glycosuria, there is equally a disappearance of glycogen, but nothing is seen, as far as the blood is concerned, of the sugar derivable from it. Proof is given that the sugar has not undergone destruction by the fact of its coming into view when the kidney is reached. It is simply for the time being concealed by entering, as may be legitimately assumed it does, into combination with a constituent of the blood. If, in the presence of these circumstances, things can run on in this way, is it not permissible to assume that sugar may be transported in a locked-up state from the intestinal seat of food absorption, and from that of glycogen storage, to where it is required for service? By admitting this, all difficulties at once disappear.

I have previously referred to Professor Macleod's article in Leonard Hill's "Recent Advances in Physiology and Bio-Chemistry" and criticised the grounds upon which he has sought to maintain the validity of the glycogenic doctrine. Although, in dealing with this point, he contends that there is a functional transit of sugar through the circulation in a free state, he falls in with the view of transit in a combined state, declaring in the first place (p. 319) "there is reason to believe that a loose chemical compound—of a colloidal nature—exists between serum globulin and dextrose"; next remarking (p. 363), that the mother substance of the sugar eliminated in phloridzin glycosuria is undoubtedly the serum proteid; and then saying (p. 364) that the proteid which has been thus deprived of its sugar "becomes re-combined with more of it during its circulation through the rest of the body." This, it will be seen, precisely represents what is claimed as constituting the physiological mode of transit.

There are further facts connected with phloridzin glycosuria that give support to the view that has been expressed. If repeated administrations of phloridzin are employed in a well-fed animal, continued elimination of sugar occurs without any material alteration of the associated nitrogen elimination. The carbohydrate of the food, in the first part of its onward march after absorption, follows the normal course, but afterwards, through the agency of what occurs in the kidney, becomes diverted into a wrong direction and flows off with the urine as sugar. This is what happens whilst there is

FOOD-SUPPLY OR A GLYCOGEN RESERVE TO BE DRAWN UPON,

and the circumstances are compatible with the carbohydrate being linked on as a side-chain to a blood-contained molecular complex.

With the absence of food, and when the glycogen has been swept away from its seats of storage, the position of things with regard to the relative elimination of sugar and nitrogen becomes altered. The sugar falls until it arrives at a fixed relationship to the nitrogen, and when this point is reached, it is assumable that both sugar and nitrogen are being derived from the breaking down of the molecular nuclear centre that was constructed at the time of the building up of the protein molecule. Evidently, in the one case, the carbohydrate is liberated without the destruction of the molecule, and in the other, the liberation is an accompaniment of molecular disintegration.

I have just spoken of the elimination of sugar in phloridzin glycosuria being connected with food supply. The carbohydrate in the food runs off as sugar in the urine, and it does this without showing itself as sugar in the blood. The only deduction that can be drawn from this occurrence is that it passes in a state of combination, and, in view of the intensity of the glycosuria that is sometimes observed, it is evident that the capacity for transit in this state must be very great. In pancreatic diabetes, the eliminated sugar is similarly connected with food supply, but the carbohydrate of the food reaches the circulation, and passes through it to the kidney in the form of free sugar. Thus, in both these conditions, the food carbohydrate passes through the system and makes its appearance in the urine as sugar. In connexion with the one, it passes through in a concealed (combined) state, as I contend happens in its conveyance in the healthy person to the tissues for utilisation. In connexion with the other, it passes through in a free or uncombined (unassimilated) state, just as it does in ordinary diabetes. Herein, then, it may be considered that we have

THE TWO MODES OF TRANSIT, THAT IN HEALTH AND THAT IN DIABETES, REPRESENTED.

I must not allow the remarks made by Professor Halliburton, in his advocacy of the glycogenic doctrine, contained in the article that has been already referred to on "Diabetes Mellitus from the Physiological Standpoint" inserted in the July number of the *Practitioner*, 1907, to pass without comment. At the present stage a fitting place is offered for referring to them, and I will proceed to avail myself of it. The question of the sugar formation by the liver is being spoken of, and the following line of reasoning is set forth. "At the present day, the prevalent opinion among physiologists is of the nature of a compromise between the two extreme views. The liver is, no doubt, able to convert part of its glycogen into fat, but most of its glycogen is regarded as leaving the liver as sugar (dextrose). In coming to the latter conclusion, physiologists are influenced by what they learn from surviving organs generally. An excised organ is undoubtedly on the road to death, but while it still retains vitality, the phenomena it exhibits are similar in kind to, though they may be different in degree from, those which it exhibits during life. It is impossible to suppose that, at a given moment, arbitrarily called death, an organ can turn round and do what it never did before. Even in the case of blood coagulation, which appears to be a direct instance to the contrary, there is no doubt, from recent research, that the blood is always tending to clot even during life, and is prevented from doing so by the production of anti-substances (anti-thrombin produced in the liver), which neutralise the activity of the thrombin or fibrin ferment."

It is a matter of

SURPRISE TO ME TO FIND THAT PROFESSOR HALLIBURTON HAS WRITTEN IN THIS WAY

in the face of what is contained in my work on "Carbohydrate Metabolism and Diabetes," a presentation copy of

which was forwarded to him. At p. 68, the text runs: "The suggestion presents itself that sugar is taken on as a side-chain by a proteid constituent of the blood and transported to the tissues, where it is taken off for subjection to utilisation. The suggested operation is identical with what occurs in connexion with the transport of oxygen. Oxygen is taken on by hæmoglobin, and, in a state of combination, transported to the tissues, where it is taken off and applied to utilisation. Glycogen is a storage material consisting of very large molecules and therefore not adapted for shifting its position. I should think that the first action that occurs is the breaking down of its molecule into molecules of glucose, which become instantly taken on by the alluded-to molecules of the blood. There may be concerted action between the breaking-down and taking-on processes, and that there is such in operation is rendered probable by the fact that there is no show of sugar in connexion with the occurrence. Enzyme action, it may be considered, of necessity constitutes a part of the process, and the enzyme concerned, and set in motion as needed, may, in the presence of altered conditions, be intelligibly conceived to be capable of producing the deviation from the natural living state with respect to sugar that so quickly takes place as a post-mortem occurrence in the liver."

On the following page, in speaking of the effect of phloridzin, the statement is to be found: "The first effect of the phloridzin is to sweep away the glycogen that is present in the different parts of the body. If this passed through the circulatory system as free sugar there ought to be hyperglycæmia in proportion to the glycosuria, which there certainly is not. This being the case, the only conclusion to be drawn is that the katabolised glycogen (sugar) enters into side-chain or loose combination with a constituent (proteid) of the blood, and is thus conveyed to the kidney where it is set free and eliminated."

It will be seen that the view that can be now put forth, emanating from the knowledge that has been acquired during the last few years, and embodied in the work alluded to, has failed to receive Professor Halliburton's consideration. The effect of the proposition is to take away the ground from beneath his argument and destroy its reality. Previous to the recognition of carbohydrate as a constituent of protein, there could be no conception of what is permissibly entertainable now, and it must be admitted that a difficulty stood in the way of reconciling the facts observable in connexion with the changed state of things occurring in the liver at the moment of death. On the one side, evidence showed that if sugar passed into the circulation as had been suggested, the fact of its doing so could not escape being revealed by the urine, and the state of the urine negatived the possibility of the occurrence taking place. On the other side, there was the active production of sugar that was observed to occur in the liver as a post-mortem effect, and which, if occurring during life, would have established a different state of things from that actually found to exist. In these circumstances, it could only be said that the enzyme action allowed to come into play after death must be inhibited by the conditions existing during life.

With the knowledge that we now possess, it may be considered that no incompatibility exists. Concerning enzyme action, a considerable advance has been made, and it is consistent with what is now known to consider, in relation to the transformation of glycogen into sugar, that the agent concerned in effecting the process does not primarily exist in the liver in the state of enzyme, but in that of zymogen. Enzymes are dual bodies, and the mother substance of them, zymogen, possesses no activity. The coöperation of another body, the activator, is required to give it enzymic power. In other instances, the activator is brought into play as it is required, and here the conditions leading to a

### DEMAND FOR CARBOHYDRATE FROM ITS STORAGE MAY SET THE ACTIVATOR FREE AND START THE ENZYME INTO MOTION

in the manner needed. It may well be that the altered conditions occurring at death may lead to a removal of the restraining influence that held things in proper check during life. The same may be said with regard to blood coagulation. The zymogen, or pro-ferment, of thrombin is present, but is devoid of activity, so long as the coöperative agent is held from exerting its activating effect.

Looking at the distinguished position that Professor Halliburton holds as a teacher of physiology and the weight that his writings carry in the mind of members of the medical profession, I cannot help regarding it as very regrettable that the evidence which nullifies his argument should have escaped being noticed. It is medicine that suffers in connexion with the matter, for without a right physiological basis, there can be no rational comprehension to guide the medical practitioner in dealing with the wrong metabolism which stands at the root of diabetes.

Is it to reversed enzyme action that the conversion of glycogen into sugar is due? Everyone admits that the building up of glycogen from sugar constitutes an important function of the liver. We look to enzyme action as the agency effecting the process, and it is now recognised that, by altered surrounding conditions, the line of action that has been in operation may be changed into one of a reverse nature. I see nothing inconsistent with the building-up enzyme in the cells of the liver being influenced by its environment in such a manner as to lead to the occurrence of a reversal of action, and thus to give rise to a breaking down of the previously built-up glycogen into sugar.

It is interesting to note the analogous behaviour that is traceable between

### CARBOHYDRATE AND FAT IN THEIR CONNEXION WITH BIOPLASM,

and to this point I will now proceed to direct attention. We have seen that carbohydrate becomes incorporated in the bioplasmic complex, and that, if not consumed when there brought into relation with oxygen, another component of the complex, it may, under circumstances of redundancy, be cleaved off as storage material.

The effect of modern research is to give to fat a place in the bioplasmic molecule, and thus to put it into the same position as carbohydrate. I need not, I consider, here enter into the details of this matter. It will suffice to state that there is evidence to show that fat may exist in a locked-up state in a protein compound in like manner to what occurs with carbohydrate. In these circumstances, the fat is in an out-of-sight state, but is susceptible of being brought into view by the disruptive agency of peptic digestion. It is only recently that this subject has fallen under consideration, but already it has made its way into prominent notice.

With the point reached, the position of things stands as follows: the bioplasmic molecular complex, which may be regarded as the representative of a living unit and thereby as the seat of the metabolic changes which give rise to the phenomena of life, contains both carbohydrate and fat incorporated within it. Through intramolecular action, set in motion by agencies of an enzymic nature, the various occurrences noticed to ensue may be conceived to be brought about. In the molecule, oxygen also enters as a constituent, and thus circumstanced, it is brought into close relationship with the carbohydrate and fat components with which the interactions occur that give rise to the development of energy. The play that takes place is not considered to consist of straight off or unbroken oxidation, but of oxidation, step by step, of the components of the chain of which the vanishing molecule is made up. The result, when the intramolecular procedure is normally carried out, is the production of carbon dioxide, water, and ammonia,—products devoid of latent energy. Should it happen, as may in the presence of abnormal conditions be the case, that arrest at an intermediate stage takes place, the effect is the throwing off of a product retaining unexhausted energy.

I have shown that, with a redundancy of carbohydrate, glycogen is dissociated for storage purposes. Condensation, or building up within the bioplasmic molecule, must be here in operation, seeing that it is in the form of sugar, and not glycogen, that the carbohydrate enters the molecule. Precisely the same sort of thing happens in the case of fat. Under the existence of a redundancy, fat becomes, by cleavage from the bioplasmic molecule, microscopically visible where none, whilst in a locked-up state, was previously to be seen. Here again constructive work must be performed, inasmuch as neutral fat is devoid of the needed dialysability to permit of its passage through cell membranes to reach the bioplasm within. The transport must occur in association with a dialysable state, and an enzyme—lipase—exists widely distributed through the body, which performs the office of breaking down fat into fatty acid and glycerine,

when transmission through a cell membrane is wanted. This operation, followed by saponification, provides for the transmission, and then, should the conditions be such as to lead to neutral fat coming into view, a re-synthetic action is brought into play. What has been stated stands in accord with the teachings of the present day, and it is seen that the line of procedure in the case of fat fits in with that appertaining to carbohydrate.

These phenomena cannot for a moment be conceived to issue from the effect of mere chemical action working independently of the influence of living power. Everything tends to show that actual

INCORPORATION IN LIVING MATTER PRECEDES METABOLIC ACTIVITY.

Living matter is made up of more or less highly complex molecules, and, thence, saying that a body enters into the constitution of living matter is tantamount to saying that it enters into the composition of the complex molecules of which it is made up. This renders it justifiable to speak of living action as resulting from incorporation of food-stuff in the bioplasmic molecules and its subjection to the influences that are there existing. Intramolecular activity in this way stands at the foundation of living action.

Now, taking carbohydrate and fat, it has to be said of them that they both, in a suitably hydrolysed state, become linked on to the bioplasmic molecules. What subsequently occurs depends upon the circumstances at the time existing. If they are oxidised, they disappear in the form of carbon dioxide and water, giving rise to the liberation of a concordant amount of energy of one kind or another. If they are not consumed in this way, and the supply of nutrient material goes on, they become dissociated and laid by as storage stuff—the carbohydrate in the form of glycogen, and the fat in the form of glyceride or neutral fat.

I strongly demur to the terminology that is in common use among pathologists in connexion with this matter. It is a "terminological inexactitude" to speak of these operations as falling generically in the category of degenerations. They are virtually in themselves of a physiological nature, and, moreover, constitute representations of, it may be said, the largest and the widest spread class of action occurring in the living world. Look at the production of starch, cellulose, &c., and of fats in the vegetable kingdom, and of glycogen and fats in the animal kingdom, as the issue of indisputable physiological procedures. It is through bioplasmic agency that the phenomenon is brought about. Either carbohydrate or fat, entering the bioplasmic complex and not being oxidised or consumed, will not remain fixed there, but be dissociated or thrown off in one form or another, according to the potential conditions existing. Carbohydrate may enter and be thrown off as carbohydrate, and fat as fat; or, it may be, that carbohydrate may be taken on and fat cleaved off, or fat enter and carbohydrate be cleaved off.

Illustrations demonstrative of these actions are readily obtainable from the vegetable kingdom. With respect to the production of fat from carbohydrate, I may cite a passage from Sachs, quoted in my "Physiology of the Carbohydrates" (p. 247): "Before maturity such [oily] seeds contain no fat, but only starch and sugar. Such unripe seeds (e.g. of *Pæonia*) may be detached from the mother plant, and allowed to lie in moist air with the result that the starch disappears and is replaced by fatty oil." With respect to the production of carbohydrate from fat, the growth of the oily seed suffices to afford a demonstration. From the oily seed placed in contact with water, a young plant springs, just as happens with its starchy congener, the fat obviously constituting the source of the cellulose that comes into existence. Concordantly, there cannot be any doubt about fat emanating from carbohydrate as a metabolic procedure in the animal kingdom, but concerning the production of carbohydrate from fat, I do not consider that any point of evidence is yet before us that can be definitely said to settle the question.

I submit that, in the dissociation process of which I have been speaking,

CARBOHYDRATE AND FAT STAND UPON IDENTICALLY THE SAME GROUND.

The matter is very simple and intelligible. Both form an integral part of bioplasm. If in excess, arising from supply, or from production within as in the case of fat from carbohydrate, of the consumption taking place, they become dissociated as storage material.

The dissociation seems to play a balancing rôle. What is not used is for the time thrown off. This is well seen in the case of yeast cell growth in association with a plentiful supply of sugar. The sugar is taken, and that which is in excess of application is thrown off as glycogen. The adipose tissue cells, although replete with fat, go on taking it if it is presented to them. Because it is not actually wanted does not stop the process of taking on. When the supply fails and it is wanted elsewhere, then a reverse action occurs, and it is taken back and transported to where it is needed for consumption, just in the same way as occurs with carbohydrate. What I submit is that, as a general principle of action, the taking on does not necessarily cease when what is taken on is not consumed.

Here lies the

FOUNDATION OF THE SO-CALLED DEGENERATIONS.

They simply represent thrown off material which has been incorporated into bioplasm, or produced within it, in excess of consumption. The liver is full of activity in this way. Standing in the position it does in relation to food, it is brought into contact with supply material to a greater extent than happens elsewhere, and do we not accordingly find that in this organ, more than anywhere else, accumulation of fat and carbohydrate is observed to take place?

Thus far I have been dealing with the supply as standing at the foundation of the condition that may happen to be met with. Taking the other side of the question, a check to consumption may be the determining cause of accumulation. Whilst consumption is balanced to supply, no opportunity exists for the occurrence of dissociation. Should consumption, however, fall short, surplus material will come into existence and show itself as a dissociated product. The two main sources of dissociation of this kind are deficient supply of oxygen and inactivity. From whatever cause arising, these conditions are known to give rise to accumulations of both fat and glycogen. Damage of cell bioplasm through toxic agency, as for instance from diphtheria, &c., will, by the instrumentality of its check to activity, give rise to the condition that is being considered.

Under the view set forth, the whole matter is placed upon a rational basis and made clear and intelligible. Degradation of protein into fat, after the manner that was formerly entertained, does not enter into the question. The operation, in fact, consists of a throwing off, precisely as is done upon a most extensive scale, as a normal metabolic procedure, in both kingdoms of living nature. The act of throwing off, as has been seen, is subordinated to the influence of the collateral conditions existing. When these conditions are normal, the process is a physiological one, and there is nothing of a degenerative nature about it. It is only when the throwing off is occasioned by a pathological state that the term "degeneration" can be justifiably applied to it. The distinction that applies to the terms "growth" and "hypertrophy" is strictly applicable in connexion with the point under consideration. To use the term "degeneration" in the manner that is too often done, is absolutely unscientific and misleading.

We learn, both experimentally and clinically, that

THE PANCREAS IS MIXED UP WITH CARBOHYDRATE METABOLISM,

and let me now pass to the consideration of this subject, and see the kind of reading that may permissibly be put upon the facts that have been disclosed in connexion with it.

Our predecessors of many years back recognised that disease of the pancreas was from time to time met with in the post-mortem examination of persons who had died from diabetes. The recognition in modern times that diabetes follows experimental extirpation of the pancreas, stands in conformity with this, and, as it is found experimentally that for the production of the effect the extirpation must be complete, so from modern clinical experience it is learnt that partial disease of the organ may exist without being attended with diabetes, whilst with extensive disease of it, diabetes may be expected to be found as a concomitant.

Something, then, derived from the pancreas is apparently concerned in contributing to the normal metabolism of carbohydrate, inasmuch as in the absence of this something, carbohydrate shows itself as sugar in the system in a manner that does not occur when the proper passage to utilisation is carried out. Now, in the proper passage of food molecules to utilisation, a preliminary linking on to the various bioplasmic molecules of the body is, at the present time, pretty

which was forwarded to him. At p. 68, the text runs: "The suggestion presents itself that sugar is taken on as a side-chain by a proteid constituent of the blood and transported to the tissues, where it is taken off for subjection to utilisation. The suggested operation is identical with what occurs in connexion with the transport of oxygen. Oxygen is taken on by hæmoglobin, and, in a state of combination, transported to the tissues, where it is taken off and applied to utilisation. Glycogen is a storage material consisting of very large molecules and therefore not adapted for shifting its position. I should think that the first action that occurs is the breaking down of its molecule into molecules of glucose, which become instantly taken on by the alluded-to molecules of the blood. There may be concerted action between the breaking-down and taking-on processes, and that there is such in operation is rendered probable by the fact that there is no show of sugar in connexion with the occurrence. Enzyme action, it may be considered, of necessity constitutes a part of the process, and the enzyme concerned, and set in motion as needed, may, in the presence of altered conditions, be intelligibly conceived to be capable of producing the deviation from the natural living state with respect to sugar that so quickly takes place as a post-mortem occurrence in the liver."

On the following page, in speaking of the effect of phloridzin, the statement is to be found: "The first effect of the phloridzin is to sweep away the glycogen that is present in the different parts of the body. If this passed through the circulatory system as free sugar there ought to be hyperglycæmia in proportion to the glycosuria, which there certainly is not. This being the case, the only conclusion to be drawn is that the katabolised glycogen (sugar) enters into side-chain or loose combination with a constituent (proteid) of the blood, and is thus conveyed to the kidney where it is set free and eliminated."

It will be seen that the view that can be now put forth, emanating from the knowledge that has been acquired during the last few years, and embodied in the work alluded to, has failed to receive Professor Halliburton's consideration. The effect of the proposition is to take away the ground from beneath his argument and destroy its reality. Previous to the recognition of carbohydrate as a constituent of protein, there could be no conception of what is permissibly entertainable now, and it must be admitted that a difficulty stood in the way of reconciling the facts observable in connexion with the changed state of things occurring in the liver at the moment of death. On the one side, evidence showed that if sugar passed into the circulation as had been suggested, the fact of its doing so could not escape being revealed by the urine, and the state of the urine negatived the possibility of the occurrence taking place. On the other side, there was the active production of sugar that was observed to occur in the liver as a post-mortem effect, and which, if occurring during life, would have established a different state of things from that actually found to exist. In these circumstances, it could only be said that the enzyme action allowed to come into play after death must be inhibited by the conditions existing during life.

With the knowledge that we now possess, it may be considered that no incompatibility exists. Concerning enzyme action, a considerable advance has been made, and it is consistent with what is now known to consider, in relation to the transformation of glycogen into sugar, that the agent concerned in effecting the process does not primarily exist in the liver in the state of enzyme, but in that of zymogen. Enzymes are dual bodies, and the mother substance of them, zymogen, possesses no activity. The coöperation of another body, the activator, is required to give it enzymic power. In other instances, the activator is brought into play as it is required, and here the conditions leading to a

### DEMAND FOR CARBOHYDRATE FROM ITS STORAGE MAY SET THE ACTIVATOR FREE AND START THE ENZYME INTO MOTION

in the manner needed. It may well be that the altered conditions occurring at death may lead to a removal of the restraining influence that held things in proper check during life. The same may be said with regard to blood coagulation. The zymogen, or pro-ferment, of thrombin is present, but is devoid of activity, so long as the coöperative agent is held from exerting its activating effect.

Looking at the distinguished position that Professor Halliburton holds as a teacher of physiology and the weight that his writings carry in the mind of members of the medical profession, I cannot help regarding it as very regrettable that the evidence which nullifies his argument should have escaped being noticed. It is medicine that suffers in connexion with the matter, for without a right physiological basis, there can be no rational comprehension to guide the medical practitioner in dealing with the wrong metabolism which stands at the root of diabetes.

Is it to reversed enzyme action that the conversion of glycogen into sugar is due? Everyone admits that the building up of glycogen from sugar constitutes an important function of the liver. We look to enzyme action as the agency effecting the process, and it is now recognised that, by altered surrounding conditions, the line of action that has been in operation may be changed into one of a reverse nature. I see nothing inconsistent with the building-up enzyme in the cells of the liver being influenced by its environment in such a manner as to lead to the occurrence of a reversal of action, and thus to give rise to a breaking down of the previously built-up glycogen into sugar.

It is interesting to note the analogous behaviour that is traceable between

### CARBOHYDRATE AND FAT IN THEIR CONNEXION WITH BIOPLASM,

and to this point I will now proceed to direct attention. We have seen that carbohydrate becomes incorporated in the bioplasmic complex, and that, if not consumed when there brought into relation with oxygen, another component of the complex, it may, under circumstances of redundancy, be cleaved off as storage material.

The effect of modern research is to give to fat a place in the bioplasmic molecule, and thus to put it into the same position as carbohydrate. I need not, I consider, here enter into the details of this matter. It will suffice to state that there is evidence to show that fat may exist in a locked-up state in a protein compound in like manner to what occurs with carbohydrate. In these circumstances, the fat is in an out-of-sight state, but is susceptible of being brought into view by the disruptive agency of peptic digestion. It is only recently that this subject has fallen under consideration, but already it has made its way into prominent notice.

With the point reached, the position of things stands as follows: the bioplasmic molecular complex, which may be regarded as the representative of a living unit and thereby as the seat of the metabolic changes which give rise to the phenomena of life, contains both carbohydrate and fat incorporated within it. Through intramolecular action, set in motion by agencies of an enzymic nature, the various occurrences noticed to ensue may be conceived to be brought about. In the molecule, oxygen also enters as a constituent, and thus circumstanced, it is brought into close relationship with the carbohydrate and fat components with which the interactions occur that give rise to the development of energy. The play that takes place is not considered to consist of straight off or unbroken oxidation, but of oxidation, step by step, of the components of the chain of which the vanishing molecule is made up. The result, when the intramolecular procedure is normally carried out, is the production of carbon dioxide, water, and ammonia,—products devoid of latent energy. Should it happen, as may in the presence of abnormal conditions be the case, that arrest at an intermediate stage takes place, the effect is the throwing off of a product retaining unexhausted energy.

I have shown that, with a redundancy of carbohydrate, glycogen is dissociated for storage purposes. Condensation, or building up within the bioplasmic molecule, must be here in operation, seeing that it is in the form of sugar, and not glycogen, that the carbohydrate enters the molecule. Precisely the same sort of thing happens in the case of fat. Under the existence of a redundancy, fat becomes, by cleavage from the bioplasmic molecule, microscopically visible where none, whilst in a locked-up state, was previously to be seen. Here again constructive work must be performed, inasmuch as neutral fat is devoid of the needed dialysability to permit of its passage through cell membranes to reach the bioplasm within. The transport must occur in association with a dialysable state, and an enzyme—lipase—exists widely distributed through the body, which performs the office of breaking down fat into fatty acid and glycerine,

when transmission through a cell membrane is wanted. This operation, followed by saponification, provides for the transmission, and then, should the conditions be such as to lead to neutral fat coming into view, a re-synthetic action is brought into play. What has been stated stands in accord with the teachings of the present day, and it is seen that the line of procedure in the case of fat fits in with that appertaining to carbohydrate.

These phenomena cannot for a moment be conceived to issue from the effect of mere chemical action working independently of the influence of living power. Everything tends to show that actual

INCORPORATION IN LIVING MATTER PRECEDES METABOLIC ACTIVITY.

Living matter is made up of more or less highly complex molecules, and, thence, saying that a body enters into the constitution of living matter is tantamount to saying that it enters into the composition of the complex molecules of which it is made up. This renders it justifiable to speak of living action as resulting from incorporation of food-stuff in the bioplasmic molecules and its subjection to the influences that are there existing. Intramolecular activity in this way stands at the foundation of living action.

Now, taking carbohydrate and fat, it has to be said of them that they both, in a suitably hydrolysed state, become linked on to the bioplasmic molecules. What subsequently occurs depends upon the circumstances at the time existing. If they are oxidised, they disappear in the form of carbon dioxide and water, giving rise to the liberation of a concordant amount of energy of one kind or another. If they are not consumed in this way, and the supply of nutrient material goes on, they become dissociated and laid by as storage stuff—the carbohydrate in the form of glycogen, and the fat in the form of glyceride or neutral fat.

I strongly demur to the terminology that is in common use among pathologists in connexion with this matter. It is a "terminological inexactitude" to speak of these operations as falling generically in the category of degenerations. They are virtually in themselves of a physiological nature, and, moreover, constitute representations of, it may be said, the largest and the widest spread class of action occurring in the living world. Look at the production of starch, cellulose, &c., and of fats in the vegetable kingdom, and of glycogen and fats in the animal kingdom, as the issue of indisputable physiological procedures. It is through bioplasmic agency that the phenomenon is brought about. Either carbohydrate or fat, entering the bioplasmic complex and not being oxidised or consumed, will not remain fixed there, but be dissociated or thrown off in one form or another, according to the potential conditions existing. Carbohydrate may enter and be thrown off as carbohydrate, and fat as fat; or, it may be, that carbohydrate may be taken on and fat cleaved off, or fat enter and carbohydrate be cleaved off.

Illustrations demonstrative of these actions are readily obtainable from the vegetable kingdom. With respect to the production of fat from carbohydrate, I may cite a passage from Sachs, quoted in my "Physiology of the Carbohydrates" (p. 247): "Before maturity such [oily] seeds contain no fat, but only starch and sugar. Such unripe seeds (e.g. of *Pæonia*) may be detached from the mother plant, and allowed to lie in moist air with the result that the starch disappears and is replaced by fatty oil." With respect to the production of carbohydrate from fat, the growth of the oily seed suffices to afford a demonstration. From the oily seed placed in contact with water, a young plant springs, just as happens with its starchy congener, the fat obviously constituting the source of the cellulose that comes into existence. Concordantly, there cannot be any doubt about fat emanating from carbohydrate as a metabolic procedure in the animal kingdom, but concerning the production of carbohydrate from fat, I do not consider that any point of evidence is yet before us that can be definitely said to settle the question.

I submit that, in the dissociation process of which I have been speaking,

CARBOHYDRATE AND FAT STAND UPON IDENTICALLY THE SAME GROUND.

The matter is very simple and intelligible. Both form an integral part of bioplasm. If in excess, arising from supply, or from production within as in the case of fat from carbohydrate, of the consumption taking place, they become dissociated as storage material.

The dissociation seems to play a balancing rôle. What is not used is for the time thrown off. This is well seen in the case of yeast cell growth in association with a plentiful supply of sugar. The sugar is taken, and that which is in excess of application is thrown off as glycogen. The adipose tissue cells, although replete with fat, go on taking it if it is presented to them. Because it is not actually wanted does not stop the process of taking on. When the supply fails and it is wanted elsewhere, then a reverse action occurs, and it is taken back and transported to where it is needed for consumption, just in the same way as occurs with carbohydrate. What I submit is that, as a general principle of action, the taking on does not necessarily cease when what is taken on is not consumed.

Here lies the

FOUNDATION OF THE SO-CALLED DEGENERATIONS.

They simply represent thrown off material which has been incorporated into bioplasm, or produced within it, in excess of consumption. The liver is full of activity in this way. Standing in the position it does in relation to food, it is brought into contact with supply material to a greater extent than happens elsewhere, and do we not accordingly find that in this organ, more than anywhere else, accumulation of fat and carbohydrate is observed to take place?

Thus far I have been dealing with the supply as standing at the foundation of the condition that may happen to be met with. Taking the other side of the question, a check to consumption may be the determining cause of accumulation. Whilst consumption is balanced to supply, no opportunity exists for the occurrence of dissociation. Should consumption, however, fall short, surplus material will come into existence and show itself as a dissociated product. The two main sources of dissociation of this kind are deficient supply of oxygen and inactivity. From whatever cause arising, these conditions are known to give rise to accumulations of both fat and glycogen. Damage of cell bioplasm through toxic agency, as for instance from diphtheria, &c., will, by the instrumentality of its check to activity, give rise to the condition that is being considered.

Under the view set forth, the whole matter is placed upon a rational basis and made clear and intelligible. Degradation of protein into fat, after the manner that was formerly entertained, does not enter into the question. The operation, in fact, consists of a throwing off, precisely as is done upon a most extensive scale, as a normal metabolic procedure, in both kingdoms of living nature. The act of throwing off, as has been seen, is subordinated to the influence of the collateral conditions existing. When these conditions are normal, the process is a physiological one, and there is nothing of a degenerative nature about it. It is only when the throwing off is occasioned by a pathoiogical state that the term "degeneration" can be justifiably applied to it. The distinction that applies to the terms "growth" and "hypertrophy" is strictly applicable in connexion with the point under consideration. To use the term "degeneration" in the manner that is too often done, is absolutely unscientific and misleading.

We learn, both experimentally and clinically, that

THE PANCREAS IS MIXED UP WITH CARBOHYDRATE METABOLISM,

and let me now pass to the consideration of this subject, and see the kind of reading that may permissibly be put upon the facts that have been disclosed in connexion with it.

Our predecessors of many years back recognised that disease of the pancreas was from time to time met with in the post-mortem examination of persons who had died from diabetes. The recognition in modern times that diabetes follows experimental extirpation of the pancreas, stands in conformity with this, and, as it is found experimentally that for the production of the effect the extirpation must be complete, so from modern clinical experience it is learnt that partial disease of the organ may exist without being attended with diabetes, whilst with extensive disease of it, diabetes may be expected to be found as a concomitant.

Something, then, derived from the pancreas is apparently concerned in contributing to the normal metabolism of carbohydrate, inasmuch as in the absence of this something, carbohydrate shows itself as sugar in the system in a manner that does not occur when the proper passage to utilisation is carried out. Now, in the proper passage of food molecules to utilisation, a preliminary linking on to the various bioplasmic molecules of the body is, at the present time, pretty

which was forwarded to him. At p. 68, the text runs: "The suggestion presents itself that sugar is taken on as a side-chain by a proteid constituent of the blood and transported to the tissues, where it is taken off for subjection to utilisation. The suggested operation is identical with what occurs in connexion with the transport of oxygen. Oxygen is taken on by hæmoglobin, and, in a state of combination, transported to the tissues, where it is taken off and applied to utilisation. Glycogen is a storage material consisting of very large molecules and therefore not adapted for shifting its position. I should think that the first action that occurs is the breaking down of its molecule into molecules of glucose, which become instantly taken on by the alluded-to molecules of the blood. There may be concerted action between the breaking-down and taking-on processes, and that there is such in operation is rendered probable by the fact that there is no show of sugar in connexion with the occurrence. Enzyme action, it may be considered, of necessity constitutes a part of the process, and the enzyme concerned, and set in motion as needed, may, in the presence of altered conditions, be intelligibly conceived to be capable of producing the deviation from the natural living state with respect to sugar that so quickly takes place as a post-mortem occurrence in the liver."

On the following page, in speaking of the effect of phloridzin, the statement is to be found: "The first effect of the phloridzin is to sweep away the glycogen that is present in the different parts of the body. If this passed through the circulatory system as free sugar there ought to be hyperglycæmia in proportion to the glycosuria, which there certainly is not. This being the case, the only conclusion to be drawn is that the katabolised glycogen (sugar) enters into side-chain or loose combination with a constituent (proteid) of the blood, and is thus conveyed to the kidney where it is set free and eliminated."

It will be seen that the view that can be now put forth, emanating from the knowledge that has been acquired during the last few years, and embodied in the work alluded to, has failed to receive Professor Halliburton's consideration. The effect of the proposition is to take away the ground from beneath his argument and destroy its reality. Previous to the recognition of carbohydrate as a constituent of protein, there could be no conception of what is permissibly entertainable now, and it must be admitted that a difficulty stood in the way of reconciling the facts observable in connexion with the changed state of things occurring in the liver at the moment of death. On the one side, evidence showed that if sugar passed into the circulation as had been suggested, the fact of its doing so could not escape being revealed by the urine, and the state of the urine negatived the possibility of the occurrence taking place. On the other side, there was the active production of sugar that was observed to occur in the liver as a post-mortem effect, and which, if occurring during life, would have established a different state of things from that actually found to exist. In these circumstances, it could only be said that the enzyme action allowed to come into play after death must be inhibited by the conditions existing during life.

With the knowledge that we now possess, it may be considered that no incompatibility exists. Concerning enzyme action, a considerable advance has been made, and it is consistent with what is now known to consider, in relation to the transformation of glycogen into sugar, that the agent concerned in effecting the process does not primarily exist in the liver in the state of enzyme, but in that of zymogen. Enzymes are dual bodies, and the mother substance of them, zymogen, possesses no activity. The coöperation of another body, the activator, is required to give it enzymic power. In other instances, the activator is brought into play as it is required, and here the conditions leading to a

### DEMAND FOR CARBOHYDRATE FROM ITS STORAGE MAY SET THE ACTIVATOR FREE AND START THE ENZYME INTO MOTION

in the manner needed. It may well be that the altered conditions occurring at death may lead to a removal of the restraining influence that held things in proper check during life. The same may be said with regard to blood coagulation. The zymogen, or pro-ferment, of thrombin is present, but is devoid of activity, so long as the coöperative agent is held from exerting its activating effect.

Looking at the distinguished position that Professor Halliburton holds as a teacher of physiology and the weight that his writings carry in the mind of members of the medical profession, I cannot help regarding it as very regrettable that the evidence which nullifies his argument should have escaped being noticed. It is medicine that suffers in connexion with the matter, for without a right physiological basis, there can be no rational comprehension to guide the medical practitioner in dealing with the wrong metabolism which stands at the root of diabetes.

Is it to reversed enzyme action that the conversion of glycogen into sugar is due? Everyone admits that the building up of glycogen from sugar constitutes an important function of the liver. We look to enzyme action as the agency effecting the process, and it is now recognised that, by altered surrounding conditions, the line of action that has been in operation may be changed into one of a reverse nature. I see nothing inconsistent with the building-up enzyme in the cells of the liver being influenced by its environment in such a manner as to lead to the occurrence of a reversal of action, and thus to give rise to a breaking down of the previously built-up glycogen into sugar.

It is interesting to note the analogous behaviour that is traceable between

### CARBOHYDRATE AND FAT IN THEIR CONNEXION WITH BIOPLASM,

and to this point I will now proceed to direct attention. We have seen that carbohydrate becomes incorporated in the bioplasmic complex, and that, if not consumed when there brought into relation with oxygen, another component of the complex, it may, under circumstances of redundancy, be cleaved off as storage material.

The effect of modern research is to give to fat a place in the bioplasmic molecule, and thus to put it into the same position as carbohydrate. I need not, I consider, here enter into the details of this matter. It will suffice to state that there is evidence to show that fat may exist in a locked-up state in a protein compound in like manner to what occurs with carbohydrate. In these circumstances, the fat is in an out-of-sight state, but is susceptible of being brought into view by the disruptive agency of peptic digestion. It is only recently that this subject has fallen under consideration, but already it has made its way into prominent notice.

With the point reached, the position of things stands as follows: the bioplasmic molecular complex, which may be regarded as the representative of a living unit and thereby as the seat of the metabolic changes which give rise to the phenomena of life, contains both carbohydrate and fat incorporated within it. Through intramolecular action, set in motion by agencies of an enzymic nature, the various occurrences noticed to ensue may be conceived to be brought about. In the molecule, oxygen also enters as a constituent, and thus circumstanced, it is brought into close relationship with the carbohydrate and fat components with which the interactions occur that give rise to the development of energy. The play that takes place is not considered to consist of straight off or unbroken oxidation, but of oxidation, step by step, of the components of the chain of which the vanishing molecule is made up. The result, when the intramolecular procedure is normally carried out, is the production of carbon dioxide, water, and ammonia,—products devoid of latent energy. Should it happen, as may in the presence of abnormal conditions be the case, that arrest at an intermediate stage takes place, the effect is the throwing off of a product retaining unexhausted energy.

I have shown that, with a redundancy of carbohydrate, glycogen is dissociated for storage purposes. Condensation, or building up within the bioplasmic molecule, must be here in operation, seeing that it is in the form of sugar, and not glycogen, that the carbohydrate enters the molecule. Precisely the same sort of thing happens in the case of fat. Under the existence of a redundancy, fat becomes, by cleavage from the bioplasmic molecule, microscopically visible where none, whilst in a locked-up state, was previously to be seen. Here again constructive work must be performed, inasmuch as neutral fat is devoid of the needed dialysability to permit of its passage through cell membranes to reach the bioplasm within. The transport must occur in association with a dialysable state, and an enzyme—lipase—exists widely distributed through the body, which performs the office of breaking down fat into fatty acid and glycerine,

when transmission through a cell membrane is wanted. This operation, followed by saponification, provides for the transmission, and then, should the conditions be such as to lead to neutral fat coming into view, a re-synthetic action is brought into play. What has been stated stands in accord with the teachings of the present day, and it is seen that the line of procedure in the case of fat fits in with that appertaining to carbohydrate.

These phenomena cannot for a moment be conceived to issue from the effect of mere chemical action working independently of the influence of living power. Everything tends to show that actual

INCORPORATION IN LIVING MATTER PRECEDES METABOLIC ACTIVITY.

Living matter is made up of more or less highly complex molecules, and, thence, saying that a body enters into the constitution of living matter is tantamount to saying that it enters into the composition of the complex molecules of which it is made up. This renders it justifiable to speak of living action as resulting from incorporation of food-stuff in the bioplasmic molecules and its subjection to the influences that are there existing. Intramolecular activity in this way stands at the foundation of living action.

Now, taking carbohydrate and fat, it has to be said of them that they both, in a suitably hydrolysed state, become linked on to the bioplasmic molecules. What subsequently occurs depends upon the circumstances at the time existing. If they are oxidised, they disappear in the form of carbon dioxide and water, giving rise to the liberation of a concordant amount of energy of one kind or another. If they are not consumed in this way, and the supply of nutrient material goes on, they become dissociated and laid by as storage stuff—the carbohydrate in the form of glycogen, and the fat in the form of glyceride or neutral fat.

I strongly demur to the terminology that is in common use among pathologists in connexion with this matter. It is a "terminological inexactitude" to speak of these operations as falling generically in the category of degenerations. They are virtually in themselves of a physiological nature, and, moreover, constitute representations of, it may be said, the largest and the widest spread class of action occurring in the living world. Look at the production of starch, cellulose, &c., and of fats in the vegetable kingdom, and of glycogen and fats in the animal kingdom, as the issue of indisputable physiological procedures. It is through bioplasmic agency that the phenomenon is brought about. Either carbohydrate or fat, entering the bioplasmic complex and not being oxidised or consumed, will not remain fixed there, but be dissociated or thrown off in one form or another, according to the potential conditions existing. Carbohydrate may enter and be thrown off as carbohydrate, and fat as fat; or, it may be, that carbohydrate may be taken on and fat cleaved off, or fat enter and carbohydrate be cleaved off.

Illustrations demonstrative of these actions are readily obtainable from the vegetable kingdom. With respect to the production of fat from carbohydrate, I may cite a passage from Sachs, quoted in my "Physiology of the Carbohydrates" (p. 247): "Before maturity such [oily] seeds contain no fat, but only starch and sugar. Such unripe seeds (e.g. of *Pæonia*) may be detached from the mother plant, and allowed to lie in moist air with the result that the starch disappears and is replaced by fatty oil." With respect to the production of carbohydrate from fat, the growth of the oily seed suffices to afford a demonstration. From the oily seed placed in contact with water, a young plant springs, just as happens with its starchy congener, the fat obviously constituting the source of the cellulose that comes into existence. Concordantly, there cannot be any doubt about fat emanating from carbohydrate as a metabolic procedure in the animal kingdom, but concerning the production of carbohydrate from fat, I do not consider that any point of evidence is yet before us that can be definitely said to settle the question.

I submit that, in the dissociation process of which I have been speaking,

CARBOHYDRATE AND FAT STAND UPON IDENTICALLY THE SAME GROUND.

The matter is very simple and intelligible. Both form an integral part of bioplasm. If in excess, arising from supply, or from production within as in the case of fat from carbohydrate, of the consumption taking place, they become dissociated as storage material.

The dissociation seems to play a balancing rôle. What is not used is for the time thrown off. This is well seen in the case of yeast cell growth in association with a plentiful supply of sugar. The sugar is taken, and that which is in excess of application is thrown off as glycogen. The adipose tissue cells, although replete with fat, go on taking it if it is presented to them. Because it is not actually wanted does not stop the process of taking on. When the supply fails and it is wanted elsewhere, then a reverse action occurs, and it is taken back and transported to where it is needed for consumption, just in the same way as occurs with carbohydrate. What I submit is that, as a general principle of action, the taking on does not necessarily cease when what is taken on is not consumed.

Here lies the

FOUNDATION OF THE SO-CALLED DEGENERATIONS.

They simply represent thrown off material which has been incorporated into bioplasm, or produced within it, in excess of consumption. The liver is full of activity in this way. Standing in the position it does in relation to food, it is brought into contact with supply material to a greater extent than happens elsewhere, and do we not accordingly find that in this organ, more than anywhere else, accumulation of fat and carbohydrate is observed to take place?

Thus far I have been dealing with the supply as standing at the foundation of the condition that may happen to be met with. Taking the other side of the question, a check to consumption may be the determining cause of accumulation. Whilst consumption is balanced to supply, no opportunity exists for the occurrence of dissociation. Should consumption, however, fall short, surplus material will come into existence and show itself as a dissociated product. The two main sources of dissociation of this kind are deficient supply of oxygen and inactivity. From whatever cause arising, these conditions are known to give rise to accumulations of both fat and glycogen. Damage of cell bioplasm through toxic agency, as for instance from diphtheria, &c., will, by the instrumentality of its check to activity, give rise to the condition that is being considered.

Under the view set forth, the whole matter is placed upon a rational basis and made clear and intelligible. Degradation of protein into fat, after the manner that was formerly entertained, does not enter into the question. The operation, in fact, consists of a throwing off, precisely as is done upon a most extensive scale, as a normal metabolic procedure, in both kingdoms of living nature. The act of throwing off, as has been seen, is subordinated to the influence of the collateral conditions existing. When these conditions are normal, the process is a physiological one, and there is nothing of a degenerative nature about it. It is only when the throwing off is occasioned by a pathological state that the term "degeneration" can be justifiably applied to it. The distinction that applies to the terms "growth" and "hypertrophy" is strictly applicable in connexion with the point under consideration. To use the term "degeneration" in the manner that is too often done, is absolutely unscientific and misleading.

We learn, both experimentally and clinically, that

THE PANCREAS IS MIXED UP WITH CARBOHYDRATE METABOLISM,

and let me now pass to the consideration of this subject, and see the kind of reading that may permissibly be put upon the facts that have been disclosed in connexion with it.

Our predecessors of many years back recognised that disease of the pancreas was from time to time met with in the post-mortem examination of persons who had died from diabetes. The recognition in modern times that diabetes follows experimental extirpation of the pancreas, stands in conformity with this, and, as it is found experimentally that for the production of the effect the extirpation must be complete, so from modern clinical experience it is learnt that partial disease of the organ may exist without being attended with diabetes, whilst with extensive disease of it, diabetes may be expected to be found as a concomitant.

Something, then, derived from the pancreas is apparently concerned in contributing to the normal metabolism of carbohydrate, inasmuch as in the absence of this something, carbohydrate shows itself as sugar in the system in a manner that does not occur when the proper passage to utilisation is carried out. Now, in the proper passage of food molecules to utilisation, a preliminary linking on to the various bioplasmic molecules of the body is, at the present time, pretty

generally admitted to take place. It is not conceived, as at one time was done, that the food molecule is consumed in the form of an isolated entity. Toxins, when in a position to be incapable of being taken on by the constituent molecules of bioplasm, fail to exert any toxic effect. It is only when they become actually linked on to the bioplasmic molecules that the interactions that are needed to evoke the results which are capable of being produced by the particular toxin concerned, can occur. So with food molecules, they must be embodied into the bioplasmic molecules as a preliminary step to utilisation. Thus placed in these molecules, they are brought into relation with the other constituents, notably oxygen, which presumably is present in a loosely combined state as in oxyhæmoglobin, and put into a position to permit of the interactions attended with oxidation and the liberation of energy that are observed to take place.

Analogy may be appealed to for assistance in the comprehension of the procedure involved in

### THE LINKING ON OF THE FOOD MOLECULE TO THE BIOPLASMIC COMPLEX.

We learn from what occurs in connexion with toxins and with lysins (hæmolysins and bacteriolysins), that there is an intermediary body, the amboceptor, through which the junction with the bioplasmic molecule is effected. In the absence of the play of this intermediary body, no junction and no effect follow the presence of the toxin and the lysin in the blood. A large amount of closely reasoned experimental work, with much of it of a test-tube nature, stands at the foundation of the conception that has been put forward, and gives to it a well-grounded qualification for acceptance.

Proceeding with the matter, it may further be said that, whilst the body that is linked on (in immunity phraseology called the complement) is thermo-labile or susceptible of destruction under exposure to a moderately elevated temperature, the agent that links on (amboceptor) may be exposed to a boiling temperature without losing its linking-on power, and is, therefore, incontradistinction spoken of as thermo-stable. This is an important point in connexion with the train of reasoning that I am about to set forth.

It is contended that the first step towards the utilisation of carbohydrate is linking on to the bioplasmic complex. Without susceptibility of being linked on, it simply filters through the body and runs out with the urine without being in any way touched. This is the case, for instance, with the disaccharides,—saccharose, lactose, and maltose, when under any circumstances reaching the circulatory system as such. With the monosaccharides,—dextrose, levulose, and galactose, on the other hand, we find that these, when present in the circulation, do not wholly escape in a similar manner. A portion fails to pass out with the urine, and this portion, it may be assumed, becomes put into the combined state, and subsequently made use of in the ordinary manner. If no capacity existed for linking on these monosaccharides, it is not conceivable that they would be any more susceptible of utilisation than the group which is not utilisable.

The effect following the introduction of the different sugars into the circulation by intravenous injection has been already alluded to. It has been seen that a certain amount of power exists of putting the monosaccharides into a position to be made susceptible of retention in the system. A great contrast, however, is to be perceived in the extent of power that exists at the seat of absorption in the alimentary canal to deal with the sugar derived from the food, as compared with that existing in the blood. Notwithstanding the large amount of carbohydrate that may be ingested with the food, we find, with its reception into the organism in a normal way, that it effectually becomes assimilated, or put into an altered state, and thus prevented reaching the general circulation as sugar. Introduced, on the other hand, in a direct manner into the circulation, the evidence afforded, alike by the urine and by analytical examination of the blood, shows that it is only comparatively slowly and in limited quantity susceptible of being thrown out of view, by the power that is here encountered.

Protein and carbohydrate are similarly circumstanced in connexion with this point. The digestion products of both are rapidly put out of sight after absorption from the alimentary canal, and are not to be traced on into the general circulation. Introduced into the circulation, both are, to a certain extent, susceptible of being dealt with and removed from view, that which is not so dealt with, flowing off, in each case with the urine. Professor E. H. Starling, in a paper published in Vol. XIV. of the *Journal of Physiology*, says with reference to the results obtained from the injection of peptone and sugar into the blood: "It will be seen from them that the behaviour of peptone after injection is almost exactly analogous to that of sugar."

What is it that occurs in connexion with the disappearance of carbohydrate to account for the phenomenon? A portion may be taken by the tissue bioplasmic molecules, if there is a want of it to replace side-chains that have been worked off. Evidence, however, is forthcoming to show that there is to be found within the blood itself a means by which sugar may be carried out of view.

Besides carbohydrate in the form of sugar,

### CARBOHYDRATE IN THE AMYLOSE FORM IS OBTAINABLE FROM BLOOD.

After the removal of the sugar by treatment with alcohol, the precipitated matter is capable of yielding a certain amount of carbohydrate in the amylose form, after having been subjected to the breaking-down influence of boiling with potash. This, under ordinary circumstances, is found to amount to about 1 per 1000 of blood. I have for a long time known that the amylose carbohydrate that is thus capable of being obtained from blood, shows itself in greater amount after the introduction of sugar into the circulation. I gave illustrations of this in my "Physiology of the Carbohydrates," published in 1894, and regarded the fact as constituting a noteworthy point.

Later, I recognised that if I introduced sugar into the circulation in conjunction with a boiled aqueous extract of pancreas, the amylose carbohydrate was to a decided extent further increased. The experiments on this point are set forth in my "Carbohydrate Metabolism and Diabetes" (p. 71 *et seq.*). It seems to me that, without doubt, the conclusion may be drawn from them that the pancreatic extract supplies something which contributes to the conversion, by the bioplasm existing in the blood, of sugar into amylose carbohydrate. The following supplies an epitome of the result obtained.

I need not here enter into the question of the mode of estimation of the amylose carbohydrate. This matter has been fully referred to in my previous writings, extending over many years past. Suffice it to say, that, upon the strength of some hundreds of estimations, I consider that confidence may be placed in the trustworthiness of the results yielded by the procedure adopted.

In the first place, 11 determinations are given derived from normal rabbit's blood. The figures for the mean of these stand at 1·41 grammes of amylose carbohydrate per 1000 grammes of blood, the maximum figures being 1·55, and the minimum 1·25. The figures, therefore, throughout the list stand very closely together.

In five determinations made from blood collected at varying periods up to 30 minutes after the intravenous injection of one gramme per kilogramme bodyweight of dextrose dissolved in saline solution, the mean figures were 1·61 per 1000, the maximum being 1·80, and the minimum 1·52. Two determinations were made after the lapse of an hour from the time of the injection. The figures came out at 1·43 and 1·34, showing that any effect that might have been previously produced had passed off.

In the case of levulose similarly dealt with, the figures in two experiments from blood collected 15 and 30 minutes after the injection were 2·60 per 1000 and 2·67 per 1000 as against 1·81 in one experiment from blood collected at the end of an hour. Looking at these figures, no doubt can exist of the amylose carbohydrate having been raised by the levulose injection.

Two experiments were made to see the effect of injecting saline solution alone. The figures from blood collected at the end of 15 minutes came out in each case at 1·35 per 1000.

Passing to the experiments with the pancreatic extract, two experiments were conducted in which the extract alone was injected. In one, the blood was collected at the end of 15 minutes, and the figures given were 1·77 per 1000. In the other, the blood was collected at the end of 30 minutes, and the figures given were 1·52 per 1000.

In 13 experiments, the pancreatic extract was employed with 1 gramme per kilogramme bodyweight of dextrose.

The mean of the figures yielded came out at 2·03 per 1000, the maximum being 2·47 and the minimum 1·57.

In four experiments of a similar nature with levulose, the mean figures stood at 2·07 per 1000 with the maximum at 2·56 and the minimum at 1·74.

One experiment was conducted with the injection of the raw extract of pancreas in association with dextrose. The injection proved immediately fatal, and the figures met with were 1·04 per 1000. These low figures are not surprising, seeing that the physical effect of the injection of the sugar solution would be to lead to a dilution of the blood, firstly from the fluid injected, and next from the hypertonicity given to the blood leading to fluid being drawn into it from the tissues.

Five experiments are recorded with the subcutaneous, instead of intravenous, injection of pancreatic extract and dextrose. The mean figures stood at 1·77 per 1000, the maximum being 2·09, and the minimum 1·52.

In one experiment of a like nature with the employment of levulose, the figures stood at 2·30 per 1000.

With reference to the precise signification of these experiments, all that is at the present moment needed to be done is to urge that they suffice to show that the pancreatic extract really exerts an action in relation to the passage of sugar into amylose carbohydrate. I will now enter upon the question of *modus operandi*.

The amboceptor in immunity phraseology seems to stand as the representative of the co-ferment concerned in enzyme action. It is now known that enzymes are dual bodies, and that the two parts are capable of being separated from each other. When separated, neither possesses any enzymic power. One is destructible by heat and seems to be the active agent, corresponding with the complement in immunity language. The other does not lose its virtue by subjection to boiling, and thus stands in the position of that which gives power to thyroid and suprarenal extracts. Taking the expressed juice of yeast, which contains zymase—the enzyme which converts sugar into alcohol and carbonic acid—a given quantity of the fresh juice has been found experimentally to have its enzymic power doubled by the addition of an equal quantity of boiled juice. This means that an extra quantity of the co-ferment, which possesses no inherent active power, gives increased power to the essentially active principle of a "complement" nature that is present in the juice.

The effect of the co-ferment is seen to be comparable to that of the pancreatic extract, and both, on account of having been exposed to a boiling temperature, must be devoid of energy-exerting power. It is obvious that the co-ferment must, in some way or other, contribute the assistance to the potential part of the enzyme which enables it to bring about the increased effect that has been spoken of. The possession of a linking-on power of an

AMBOCEPTOR

nature would suffice to supply what is wanted, and in functioning in this way, an explanation is afforded of its mode of action which satisfactorily fits in with the explanation given in connexion with operations of another, but probably allied, nature.

In the case of hæmolysins and bacteriolysins, it seems to have been experimentally reduced to demonstration that a something becomes developed within the blood which plays the passive part of connecting a lytic body (complement), present as an ordinary constituent of the blood, with that which undergoes dissolution. Without the aid of this connecting body (amboceptor), the red corpuscle and the bacterium fail to be attacked, notwithstanding they are surrounded by "complement." The amboceptor is reasonably assumed to possess a linkage capacity which leads to its joining up the complement with the red corpuscle or the bacterium, and thus placing it in a position to exert its lytic influence upon them, which, in the absence of the junction, it is powerless to do.

Through the instrumentality of the amboceptor, then, the complement is linked on to the bioplasm, and until this occurs no action takes place. The food molecule also requires, as I have before said, to be linked on to bioplasm before it can be turned to account. I think it is now pretty generally admitted that it is within, or as an integral part of bioplasm, that it is made use of, and that whilst outside bioplasm, it can no more be metabolised than a toxin molecule that has had its linking-on capacity abolished can produce a toxic effect.

Molecular configuration has been spoken of in connexion with the chemical union of bodies and it has been asserted that there must be a mutually adapted configuration to permit of junction taking place. Now, why may it not happen that amboceptor aid is required for linking the sugar molecule on to bioplasm? The facts before us bearing-on the position held by the pancreas in relation to the matter under consideration suggest that it is. Acceding to the proposition that an amboceptor is needed for the linking-on of the sugar molecule to bioplasm, and that the pancreas is concerned in its supply, everything fits in and becomes placed on a clear and intelligible footing. If the aptitude does not exist for the monosaccharide molecule to be linked on to bioplasm, it becomes placed in the same position as a disaccharide molecule, which, whilst remaining as such, plays no part in connexion with living matter, and, if reaching the system, becomes thrown off with the urine in the same way as any other extraneous or unutilisable material.

The point reached is that the facts before us suggest that

THE PANCREAS SUPPLIES AMBOCEPTORS

which, by effecting the attachment of the sugar molecule to the bioplasmic molecule, place it in a position to be disposed of according to the existing environment. It may undergo oxidation and disappear with the liberation of energy. It may become transmuted into glycogen (amylose carbohydrate). For this, it must be conceived to pass in the first place into bioplasm, in the same manner as the hydrolyte is conceived to pass into union with the enzyme preparatory to being converted into another form. Or it may be transformed into fat by a process analogous to that of transmutation into glycogen—that is to say, as a result of a molecular rearrangement taking place within the bioplasmic complex. The liver cells, in a marked manner, afford illustrations of the capacity existing in bioplasm of producing glycogen and fat from sugar. The action is comparable to that of a ferment, in so far that a body enters in one form and is thrown off in another.

In the case of the intravenously injected sugar without the pancreatic extract, it has been seen that a small increase in the amount of amylose carbohydrate obtained upon that normally obtainable, occurred. This may be taken to be attributable, under the view adopted, to amboceptor derivation from the pancreas normally existing in the blood. The linking-on agency would be increased by the association of the pancreatic extract with the sugar solution, and here the amylose carbohydrate was found in a very distinct manner to be further augmented. The facts exist with which the reading given fits in as a rational deduction.

I look upon the leucocytes of the blood as one of the

AGENCIES CONCERNED IN THE PRIMARY METABOLISM OF CARBOHYDRATE MATTER.

They admittedly feed upon material that may chance to be present in the blood, and in this way extrinsic nutrient matter that may happen incidentally to reach the blood may be appropriated and built up into bioplasm, which, like that of the lymphocytes, may pass by autolysis into the blood proteins. We have here an agency that may be instrumental in putting available matter of any kind that may in any way get into the blood, into a condition of elaborated blood pabulum.

As yet I have only applied the line of argument adduced to action occurring in the blood. But the blood is not the medium designed for the food carbohydrate to be dealt with. The work of construction into bioplasm is performed before the blood is reached by the agency of the lymphocytes. Upon this subject I have already fully spoken. Leucocytes are little masses of growing bioplasm. Lymphocytes are, in this sense, the same, and the same train of occurrences in connexion with growth may be reasonably assumed to ensue. By analogy the line of working with respect to the point before us may be carried from the one to the other. If the amboceptor is in operation, as a means of linkage of the sugar molecule to the bioplasmic molecule in the leucocyte, it may be equally taken to be similarly in operation in the lymphocyte.

This brings the amboceptor factor into connexion with the broad question of the passage of carbohydrate into the assimilated state. That it does become an incorporated constituent of protein is regarded as an accepted fact. With this before us, let it be supposed that through faulty action the

carbohydrate molecule should fail to become linked on to the bioplasmic molecule, what, it may be asked, would be the state of things produced? The sugar molecule would be left untouched, and would thence pass on into the circulation in a free state, which is tantamount to saying that there would be glycosuria proportionate in extent to the carbohydrate ingested and failing to become assimilated.

If the amboceptor is concerned in performing the office suggested in connexion with the appropriation of carbohydrate by incorporation into bioplasm, it may not unreasonably be considered to be similarly concerned in the transmutation of sugar into glycogen in the liver. The passage of sugar into glycogen constitutes a building-up operation. There are grounds for believing that the sugar in the first instance becomes taken into bioplasm. Afterwards, from the redundancy existing, a shedding off in the form of glycogen would follow, in conformity with what is conceived in circumstances of the kind to ordinarily occur. Viewed in this way, the amboceptor, if needed for the bioplasmic assimilative operation, may be reckoned to be also needed for the transmutation of sugar into glycogen in the liver.

Experience in connexion with diabetes points strongly to a fault of the nature here depicted, standing at the foundation of the show of sugar that occurs. In the passage of ingested carbohydrate to its natural destination, a certain chain of events is passed through. A faulty link in the chain, through such a defect as has been spoken of, would suffice to lead to a breakage of action continuity. A faulty cog in the metabolic mechanism is amply sufficient to account for the arrested progress of onward movement that renders itself perceptible through the sugar that comes into, and ought not to come into, view.

The theory of

GLYCOLYSIS, AS ENUNCIATED BY LÉPINE,

appropriately falls in here for consideration. As long as Lépine held to the canons of the glycogenic doctrine, which imply destruction, and thereby disappearance, of sugar in the transit of the blood through the systemic capillaries, there was a show of reason in seeking for an explanation of the disappearance. But how does the matter stand when he retires from his former position and denies the occurrence of the disappearance? This, in reality, is the issue of his recent experimental work, evidence being adduced by him showing the existence of more sugar (instead of less) in the blood returning by the veins than in that contained in the arteries. He, at the same time, speaks of a *virtuel* sugar (which I take to be the same as my combined or locked-up carbohydrate) as a source of the sugar that thus comes into view.

Lépine now endorses what I have all along contended for—namely, that there is not the evidence of sugar being destroyed in its transit through the systemic capillaries that was formerly taken to exist. If such be the case, glycolysis stands upon nugatory ground, and it has always been a mystery to me how a proposition resting upon so inconsistent and illogical a basis should have received the attention that has been given to it.

Even supposing there should be an element of truth contained in the results derived by Lépine from his pancreatic extract and blood incubation experiments, I think a different interpretation can be assigned to them from that which he has given. On the question of validity, the general opinion is that they are open to mistrust, but supposing any loss of sugar to have taken place, may it not have been

THROUGH INCORPORATION INTO BIOPLASM INSTEAD OF THROUGH DESTRUCTION?

He affirms that the leucocytes are mixed up with the action, and likewise that chyle, with its lymphocytes and absence of red corpuscles, possesses greater glycolytic power than blood.

The trend of all modern work is to point to the chemical actions connected with living matter being of an intramolecular nature, and it is difficult to conceive that action occurring outside the living molecule, as Lépine contends for, can constitute the mode of operation. No one thinks of structural formative power being otherwise than associated with the operations of actual living matter. Ought not the chemical phenomena to be viewed in the same way?

Under the assumption of the occurrence of glycolysis in the blood, Otto Cohnheim and others, particularly on the American side of the Atlantic, speak of diabetes being due to sugar failing to be *burnt* in the system. Nothing could be more gratuitous, unfounded, and misleading. There is not a particle of evidence to show that defective oxidising power exists in connexion with diabetes. The real fault is a condition antecedent to the oxidising operation. The food carbohydrate, when permitted to reach the general circulation in the form of free sugar through failing to be assimilated, cannot do otherwise than run off with the urine, and thence escape being placed in a position to undergo oxidation. In the case of the dissociation of sugar from built-up bioplasm in the "composite" type of diabetes, there is no ground for thinking that defective oxygenating power has anything to do with the matter. Whilst the sugar molecule is being thrown off by the operation of a wrong lytic action, oxidisation is proceeding in an ordinary way to permit of life being maintained.

I will now pass on to the consideration of a subject which holds a position of great importance in connexion with diabetes. I have dealt at some length with the incorporation of carbohydrate in the building up of bioplasm, and, under a redundancy, with its dissociation in the form of glycogen as a storage material to be subsequently brought into use when need may arise. As glycogen is of higher construction than the sugar which enters the molecular complex, the transmutation operation must be looked upon as constituting the result of building up.

Dissociation of carbohydrate in another form—that of sugar, occurs in association with

THE PATHOLOGICAL STATE EXISTING IN THE SEVERER KIND OF DIABETES.

To this kind of diabetes I have applied the term "composite," because the eliminated sugar is derived from a twofold source. It comes in part from defective assimilation of the food carbohydrate, and in part from the carbohydrate which has been previously put into combination, and is, from a wrong katabolic action, dissociated.

There must be a flaw of some kind or other in the bioplasmic mechanism to lead to this dissociation of sugar. When the normal katabolic procedure passes on to its proper destination, metabolism proceeds to the attainment of an exhaustion of the latent energy contained in the food-stuff products that are being utilised, and the end-products consist of carbon dioxide, water, and ammonia. In the place of progress to this natural destination, it is found, in the condition being referred to, that the chain of continuity in the bioplasmic mechanism is broken in a manner to lead to the dissociation of sugar. An influence is brought into play which leads to the sugar being broken off from the bioplasmic complex, and, perforce, carrying with it unutilised energy.

This

MOLECULAR DISRUPTION ATTENDED WITH THE DISSOCIATION OF SUGAR

stands, in reality, in the position of a reversed natural action, occurring in place of the line of change that ought to be passed through. The built-up molecule, under the influence of the environment existing, fails to continue functioning in a proper manner, and, instead, undergoes the dissociation observed. As we have already seen, a similar disruption occurs whilst blood impregnated with phloridzin is circulating through the kidney. Away from the kidney, phloridzin exerts no action, but in association with a condition supplied by the kidney structure, it brings about, after the manner of enzymic agency, the severance noticed.

I must here state that, because a certain amount of sugar is being eliminated upon what may be regarded as a properly restricted diet for diabetes, it must not necessarily be taken that the sugar is derived from the wrong breaking-down process being referred to. Meat contains a limited quantity of free carbohydrate. It also contains locked-up carbohydrate in its protein ingredient. From these sources, sugar may pass into the urine in a purely alimentary case of diabetes. If it does, the defect in carbohydrate assimilative power must be of an extreme character and closely border on the next step in which, in addition to the absence of assimilative power, there is a commencing breaking-down of protein in which carbohydrate has been previously locked up.

Facts can be adduced in substantiation of the proposition just set forth. I have now and then observed in cases of diabetes without the coexistence of associated elimination of the acetone series that, after a large quantity of meat taken

at a meal, there has been a show of sugar in the urine, whilst after a moderate quantity, there has been none. Two large helpings of meat, in other words, might give rise to an appearance of sugar when one might fail to do so. This agrees with results that I notice recorded showing the effects of the ingestion of meat on the elimination of sugar in experimental pancreatic diabetes. If reference be made to Hill's "Recent Advances in Physiology and Bio-chemistry," 1906, p. 348, it will be found that an experiment on a dog is mentioned in which, in the absence of food, the sugar fell to 0·77 gramme in the 24 hours, and that, after then giving meat, it rose in the first 24 hours to 3·61, and in the next to 6·09.

Allied to the sugar elimination that has its source in a wrong breaking-down of the bioplasmic molecule may, I consider, be classed the

ELIMINATION OF THE ACETONE SERIES OF BODIES.

This constitutes one of the most important matters connected with diabetes, inasmuch as it is through its instrumentality that the fatal termination of the disease is ordinarily brought about. Sugar, in proportion as it is present in the blood, produces toxic effects of various kinds, which may lead indirectly to death, but it does not, in a direct manner, kill. With regard to the acids belonging to the acetone series, however, the same cannot be said. Their effect in the blood is to interfere with the performance of one of the necessary functions of life.

The continuance of life is dependent upon the elimination of the carbon dioxide produced as a result of vital activity. The sodic carbonate, and, to a certain extent, the sodic phosphate, are the cardinal agents for conveying the carbon dioxide from the tissues to the lungs. If, through any abnormality, there should be an entry of acid into the blood, establishing what is known as a state of acidosis, the alkaline base will be appropriated by it, and thence be prevented contributing to the transport function, as normally designed it should do.

With such circumstances present, and with the acidosis condition growing in intensity, as it will proceed to do, unless it should happen, as where the diabetic state has not attained too advanced a stage, to prove susceptible of being checked, death must sooner or later prove an inevitable result. For vital activity, as for enzyme activity, it is necessary that the products of change should become removed. Their accumulation leads to a stoppage of action, and the issue in connexion with diabetes resolves itself into a question of when the non-removal has attained a sufficient height to reduce the occurrence of action to a point that is no longer consistent with the continuance of life. If, preparatory to this stage being actually reached, a fresh power be given to the blood to take up carbon dioxide, as by the intravenous injection of a sodic carbonate solution or the ingestion of it by the mouth, a speedy restoration of activity temporarily, but unfortunately only more or less temporarily, ensues.

The view here detailed was brought forward by me in an article, published in THE LANCET in 1902,[3] entitled

"ON THE ACETONE SERIES OF PRODUCTS IN CONNEXION WITH DIABETIC COMA."

In this article I state that "writers speak of the altered constitution of the blood by the reduction of its alkalinity as the cause of the coma connected with acidosis and refer the result to the effect of the altered condition of the blood on the tissues of the body. This, however, amounts only to an assertion which gives no insight into the actual pathogeny of the coma." I then open out the view I have mentioned, and in what has preceded, reference is distinctly made to its having been discovered that, in connexion with the acidosis, a great fall in the carbon dioxide content of the blood has been observed. Not long after the article was published, exception was taken by Dr. A. P. Beddard, Dr. M. S. Pembrey, and Dr. E. I. Spriggs to the view I had announced, and they have based their conclusions upon the meaning they give to the fall of carbon dioxide in the blood noticed in their experiments. I will avail myself of this opportunity to give an answer to what they have said.

They have furnished an elaborate series of experiments which, judging from appearances, may be credited with having been carried out in a commendably careful and painstaking manner. These experiments, however, throw no additional light upon the subject. They simply give confirmation and precision to what had been ascertained before, rendering it quite evident that the acidosis in diabetes is attended with an advancing fall in the carbon dioxide content of the venous blood, and, secondarily to this, with a fall of it in the pulmonary alveolar air. A major point, in the eyes of the experimentalists, belonging to the matter, is the effect produced upon the blood by the hyperpnœa that shows itself in diabetic coma. I agree with them to the extent that hyperpnœa has something to answer for in connexion with the reduced carbon dioxide content of the blood associated with the coma. It is only naturally to be expected that the exalted respiration should contribute to the reduction that occurs, and the hyperpnœa may be looked upon as constituting an effort of Nature to rectify the defect existing in connexion with tissue respiration, by producing, through reduced carbon dioxide tension in the blood, as favourable a condition as possible for promoting the drawing off of carbon dioxide from the tissues.

The conditions belonging to the blood, however, represent only one side of the question. On the other side, there is the tissue production of carbon dioxide as an act concurrent with life, and the necessity of its removal when formed, in order to sustain the continuance of life. The supply of oxygen and the removal of carbon dioxide are necessary factors in connexion with vital activity. Arrest either operation, and vital activity will cease. To give greater security to life, the mechanism of respiration is brought into concerted action with the demand existing for its functional activity. Does anyone say that exalted respiratory action is not induced by a deficient supply of oxygen on the one hand, or a defective removal of carbon dioxide on the other? By a stimulus generated within the body by the existence of either of these conditions, a response is called forth from the respiratory nerve centre, which leads automatically to the result that follows. The recent work of Haldane and Priestley stands in accord with this view, and it is supported by the still later work of Hill and Flack.

According to my opponents, however, things are to stand on a different basis, and a new factor is gratuitously invoked, holding a place altogether outside the realm of respiratory action. Through the prolonged acidosis, they suggest that the protoplasm of the cells is made more sensitive to the stimulating influence of any acid body produced during metabolism, and thus, by the direct action of acid, the diabetic coma becomes evoked. To quote their own words, they say:—"It is suggested that the following process is taking place in the nerve-cells of the medulla: the decreased 'reactivity' of the protoplasm of the cells due to the prolonged acidosis renders their reaction more easily disturbed by, and therefore makes them more sensitive to, the stimulating influence of any acid body, including carbon dioxide and other acids produced during metabolism."[4]

Now, no need exists for going outside respiratory action and bringing in a vague, unsubstantiated, extraneous explanation of the kind here offered. The effect of acidosis is to lessen the carbon dioxide transport service performed by the sodic carbonate and sodic phosphate of the blood in proportion to the extent to which the base of these salts becomes appropriated by the acids present. Carbon dioxide is constantly being produced as a result of living action, and I think no one will contend that it does not require to be removed *pari passu* with its production. Observation shows that in enzymic and living action the effect of retention of the products generated is to inhibit, in proportion to their retention, the continuance of action, and thus, in the case under consideration, to slow down the production of carbon dioxide. This is the essential point connected with the matter, and to it the experimentalists referred to have given no attention, thereby, I consider, placing themselves upon false ground by taking too narrow a view of the subject. Their work has been limited to a study bearing on the blood, which only plays a secondary part by effecting the removal of the carbon dioxide produced, and, obviously, if the alkaline bases of it are placed in a position to be unable to contribute to the removal of the carbon dioxide, the production of it must be interfered with, and the amount entering the blood lowered, as is found to be the case in advancing acidosis. I do not consider that what is said about the blood in diabetic coma still possessing in the circumstances named some absorbing power over carbon dioxide can be taken to invalidate the considerations

[3] THE LANCET, July 12th, 1902, p. 64 et seq.

[4] Journal of Physiology, 1908, vols. xxxvii. and xii.

belonging to the other side. It is not permissible to conceive that all power of taking on carbon dioxide can be lost. Such a condition is not consistent with the existence of any evidence of life. The question hinges on degree of power, and what is of concern in the matter is the capacity of the blood for drawing off the carbon dioxide from the tissues whilst it is normally traversing the capillaries. There is nothing to show the degree of carbon dioxide tension in the tissues that is detrimental to bioplasmic activity, but I should think it may be taken that the gas, as it is produced, requires at once to be removed.

The agents producing the acidosis are the

### β-OXYBUTYRIC AND DIACETIC ACIDS.

The former is the acid started with, and from it the latter is evolved by oxidation, and this, by escape of carbon dioxide, passes into acetone. The bodies are thus linked together into a series, and in speaking of their source, the question resolves itself into that of β-oxybutyric acid.

From chemistry we learn that butyric acid stands as a lower member of the class of fatty acids to the higher members of which belong stearic, palmitic, and oleic acids, components of the fats largely occurring in the human body. In the process of oxidation, it is usually the β carbon atom of the fatty acids which primarily, both inside and outside the living organism, becomes oxidised. By oxidations in the β position, followed by hydrolytic cleavage, descent can be made from a higher to a lower member of the fatty acid series. A succession of these downward steps leads to the formation of butyric acid, which subsequently passes, by oxidation, into β-oxybutyric acid. In this way, the derivation of β-oxybutyric acid from the normally occurring higher fatty acids can intelligibly be accounted for.

Now, such being the chemical position in which oxybutyric acid stands, ought we not to look to fat for its clinical source? Fat has been already spoken of as a constituent of the bioplasmic complex, thereby standing in the same position as carbohydrate. By wrong katabolism, we have seen that sugar is thrown off, and it is only an analogous procedure for the throwing off of oxybutyric acid likewise to occur. Under the existence of a redundancy, fat and glycogen are thrown off as a normal occurrence for storage purposes, and these are both of them principles suitable for storage on account of the non-diffusible property they possess. In the case, on the other hand, of the abnormal dissociations spoken of, in each instance alike the product thrown off is of a diffusible nature and thereby incapable of retention in the system. Hence the elimination of both the sugar and the oxybutyric acid with the urine.

Sugar, under the circumstances, is the result of a faulty molecular breaking down, and must not the same be said of oxybutyric acid? The two seem to stand in a parallel position, carbohydrate in the one case, and fat in the other, being implicated, but not necessarily acted upon by the same specific cause. As to what stands at the foundation of the intramolecular error that is attended with

### DISSOCIATION OF OXYBUTYRIC ACID

is beyond us at present to discuss. The fact of the dissociation is a point of the deepest clinical interest, and I will proceed to give consideration to it, setting forth the information that we can claim to be possessed of, that will help us in dealing with the matter as medical practitioners.

It would seem, from the fact that acetone is not absolutely a foreign body in connexion with the normal state, that there must be some subsidiary action normally occurring in the direction of its production. Under certain conditions, the acetone bodies come into more prominent view. Amongst these may be mentioned, starvation and other conditions of a nature to lead to inanition, the exclusion of carbohydrate from the food as by restriction to a flesh and fat diet, and some febrile diseases, especially when occurring in children. In these cases, the bodies in question do not show themselves to a sufficient extent to produce any damaging effect; there is, however, another class of case with associated acidosis to which attention has been recently directed—delayed chloroform poisoning and cyclical or recurrent vomiting in children—where fatal effects as in diabetic coma have been observed to occur.

It is ordinarily in connexion with diabetes that the elimination of the acetone group assumes significance. With no other disease is it in a like manner associated. It had been for a very long time known that the urine and breath of diabetics might possess a peculiar odour, since found to be attributable to acetone, but until the recognition of diacetic acid in the urine by Gerhardt of Berlin in 1865, no idea existed of the intrinsic nature of this associated condition from which such serious consequences may arise in connexion with diabetes. Although the cleavage process that leads to the appearance of the bodies is virtually independent of that which leads to the dissociation of sugar, yet experience shows that some kind of relationship exists between the two. They seem, in other words, to march on in a parallel manner together.

If a case is dealt with in a way to permit of the elimination of a large quantity of sugar, which implies that the system is being subjected to the toxic influence of the sugar traversing it preparatory to elimination, sooner or later the acetone series may be expected to come into view. It is true it may happen, only very rarely have I seen it do so, that through want of proper attention being given to food, a more or less marked amount of sugar may be voided for several years without the acidosis condition becoming developed. At the same time, however, the patient, in the circumstances specified, is not exempt from the supervention of the other ill-effects arising from the toxic action of the sugar in the system, and has to pay the penalty for the injudicious course taken, by becoming the subject of neuritis, gangrene of the toe, carbuncle, cataract or some other concomitant trouble.

There can, I consider, be no doubt that individuality has much to answer for in connexion with the supervention of the

### ACIDOSIS CONDITION.

With a sensitive, high-strung nerve organisation, experience leads me to look for a proneness to the appearance of acidosis. In persons of a worrying, restless, dissatisfied nature, its greater liability to show itself gives an increased gravity to this class of case. Perhaps the greater liability to show itself depends upon the nature alluded to constituting an unfavourable factor in connexion with the progress of the disease itself. In children, it is ordinary for it to set in close to the onset of the disease, and for it soon to assume a more or less pronounced character. Moreover, in children it does not usually disappear during the time the sugar is susceptible of removal by dieting, as it may do in the adult.

I have already stated that, apart from diabetes, the acidosis condition is susceptible of being evoked by, amongst other causes, absence of food. Deprivation of carbohydrate alone suffices to act in a similar way. Now, food is found to constitute an influencing factor on the elimination of the acetone bodies in the diabetic, and it here stands in a position to be invested with bearings of the deepest importance. According to the reading adopted of the results producible by food on the acetone bodies in diabetes, the medical practitioner may be conducted along a right or a wrong path in the treatment of the disease. In the interests of medical art, and, through it, of the patient, the subject therefore demands consideration of the broadest, the most substantially grounded, and the most judiciously weighed nature, that can be brought to bear upon it.

Experience shows that the acidosis which occurs in connexion with diabetes is influenced in the manner I will proceed to speak of by the

### EFFECT OF THE RESTRICTION FROM CARBOHYDRATE FOOD

which is put into force in bringing down the sugar in the treatment of the disease. I have been in the habit, for several years past, of having the urine examined for the acetone series in all cases as a part of the examination conducted. The routine plan has been to look for diacetic acid, and this, in a multitude of instances, has been supplemented by looking also for acetone, and, in many instances, likewise for oxybutyric acid. In this way, some thousands of reports upon the point have passed under my notice, and when a positive result has been obtained, a measure of quantity has been inserted by + signs ranging from one up to five or six. It is upon this evidence that what I am about to state is founded.

As a preliminary, it must be mentioned that what is comprised under the term "restricted" diet has a very varied meaning. In reality it should mean the exclusion of carbohydrate as far as can be practically done, and this implies that the substitute for bread-stuff employed should be virtually, and not merely nominally, free from starch.

There are foods of this kind to be obtained from establishments in London, whose praiseworthy and successful efforts have been brought to bear to produce it. Unfortunately another side presents itself that nowhere escapes being encountered, and here the foods contain a varying amount of starch, which may even, in some cases, be found to reach that belonging to the bread-stuff food in common use. A moment's reflection will suffice to show that no proper knowledge can be obtained with reference to the matter under consideration in the absence of a knowledge of the actual state of the food consumed by the patient.

Generally, at an early stage of the disease (children excepted), the effect of putting the patient on a restricted diet is not attended with the production of an appearance of the acetone bodies. At a later stage, in the case where dieting has not been in a proper manner carried out, and where sugar has been all along voided, the effect of cutting off carbohydrate food may be expected to lead to a certain amount of show of the acetone bodies. Afterwards, when, as a result of the dieting, the sugar is reduced and subsequently removed, the acetone bodies may also, in the course of a little time, be counted upon to make their disappearance.

In a case of a somewhat advanced nature, where the acetone bodies have already become present, the change of diet leads to a certain amount of augmentation of them, but the augmentation that shews itself does not afterwards intrinsically tend to proceed further. In fact, the future issue is dependent upon the stage of disease that has been reached. If too advanced to admit of rectification, the disease and its associated acidosis make headway together till it happens that the acidosis becomes greater than the power of the system to withstand, and death ensues. If not sufficiently advanced inevitably to lead to this issue, and the case should be of a suitable type subsequently to yield, the sugar, as time goes on, may be found to become more and more reduced and ultimately to disappear, and, with this, the acetone bodies may be expected to follow a similar, but more tardy, course. In this way, from what may have seemed at the beginning a very unpromising state, progress may be made through the instrumentality of the influence exerted by the food in bringing down the sugar, for this is at the root of the change induced, to the attainment of a condition in which a totally new aspect is given to the life tenure prospects.

There have been those who have deprecated the strict diet in the treatment of diabetes on account of the relation that has been referred to between acetonuria and the exclusion of carbohydrate from the food. The effect of the acids of the acetone group in leading up to coma should, it has been suggested, demand first consideration and prohibit the cutting off of carbohydrate food. If such a maxim were acted upon, diabetics would stand, as indeed they did in former times before dieting was applied as it is now, in a very bad position. It is within my own recollection to have known that the outlook in diabetes was vastly different from what it is now. Experience shows that the

WAY TO GET RID OF THE ACETONE BODIES

is to bring the sugar down, and if this is not done, all that can be looked for is that they will go on increasing. The sugar in the system, by its direct toxic influence, may be regarded as a main factor in causing the acidosis in the first place to set in, and then to grow. In a case where sugar and the acetone bodies have existed, and, by cutting off carbohydrate, have become removed, as long as sugar-free urine is maintained, there is no return of the acetone bodies. Let sugar reappear by relaxation of diet, and a return of the acetone bodies may be expected to likewise occur. I could cite many cases where such has happened, and have further observed a renewed disappearance on a return to the proper food.

The effect of what I have stated is to suggest that, in ordinary cases, the cutting off of carbohydrate should at once be put into force for the purpose of dealing with the acetone bodies. At the same time, however, I do not mean to say that cases may not now and then present themselves in which it would be unwise to adopt such a course. In extreme cases, where the patient is on the brink of the supervention of coma, a little increase in the acidosis existing may suffice to turn the scale and bring about a fatal issue. The sudden withdrawal of carbohydrate has been seen to lead to such increase, and thereby a demand is created for the exercise of judgment in connexion with the course to be adopted.

The frailness of the condition as a whole, in the circumstances under consideration, has also to be taken into account. We know how easily, through the general state, the acetone bodies may be increased. A severe attack of migraine, for instance, may send them up, and influenza, pneumonia, &c., may do so sufficiently to suddenly bring about the supervention of coma. There is too much instability of system to withstand the influence of sudden change, and thus an added condition presents itself to that emanating from the direct action of the cutting off of carbohydrate on the dissociation process, which tends to promote the augmentation of the acetone bodies passing into the blood.

I have entered at some length into the question of acidosis and its bearings on food treatment in diabetes in my work on "Carbohydrate Metabolism and Diabetes," and at pages 117–22 will be found what I have said upon the subject.

Mal-application of carbohydrate food within the system constitutes the essential error existing in diabetes, and what is wanted to be effected by

TREATMENT

is to bring conditions back into line for it to be again turned to proper account. In a state of health, carbohydrate is taken and can be followed to the seat of absorption belonging to the alimentary canal. Here, however, it becomes lost to view. Neither the blood nor the urine affords evidence of the absorption that manifestly occurs. Physiologists say, notwithstanding they are confronted with this fact, that passage of the absorbed sugar into the blood occurs, but that its removal by the tissues prevents its coming into view. This constitutes an assumption which is not only not supported, but is opposed by experimental evidence. In former times, when it was held that a tangible disappearance of sugar took place in the passage of the blood from the arteries to the veins, some show of foundation presented itself for the entrance of sugar into the circulation, but now that it is admitted that no such disappearance is to be recognised, the entrance could only lead to presence in the blood and outflow with the urine, which represents the state of things existing in diabetes. For sugar to reach the circulation without showing itself in the urine, it would be necessary for a capacity to exist for effecting its instantaneous removal, and that no such capacity is present is made evident by the experimental injection of minimum quantities intravenously.

To keep sugar out of the urine, it must be kept out of the circulation, and any hypothesis explanatory of the procedure connected with the physiological application of carbohydrate must be based upon this principle. To regard it as falling within the natural course of events that the food carbohydrate should pass through the circulation to the tissues in the form of sugar is tantamount to taking the pathological as representative of the physiological state, seeing that it is just such passage which is productive of diabetes.

To escape from diabetes, the food carbohydrate must not be allowed to reach the general circulation in the form of sugar. This is

THE BASIS TO PROCEED UPON,

and the view that has been enunciated in these lectures fits in with it. It is contended that the absorbed sugar becomes dealt with at the seat of absorption, and, in company with the products derived from protein digestion, is, by the bioplasmic action attending lymphocyte growth, put into an elaborated state. The process falls under the denomination of assimilation, and when the sugar is thus disposed of and incorporated as a constituent of the large newly-constructed molecule, it is placed in a position to be secure from running off with the urine during the transit of the blood through the kidney.

Looked at in this way, the error in diabetes consists of a faulty assimilation of the sugar absorbed from the alimentary canal. Digestion prepares for absorption, and assimilation, which follows immediately upon it, puts the absorbed digestion products into an elaborated state, in which form they pass through the thoracic duct into the blood and there constitute the pabulum from which the tissues draw their nutrient supply. This agrees with what used to be the idea entertained by physiologists with regard to the course taken

by the food principles—namely, that they became elaborated into chyle, which served as a feeder to the blood. It is only in more recent years, as I have previously notified, that the shunting on to a wrong track has occurred, and that, notwithstanding chyle so obviously consists of elaborated food, the food principles have been looked upon as reaching the circulation in an uncombined, small molecular state, for transmission in such state to the tissues.

The view I am advocating not only fits in consistently from beginning to end with what I take to be properly read physiological considerations, but supplies a working basis for the treatment of diabetes which places us upon perfectly intelligible ground. It provides for the occurrence of assimilative action preparatory to the circulation being reached, and thereby for conveyance in an assimilated state to the seat of utilisation. Thus circumstanced, the digested food products are not in a condition to run off with the urine in traversing the kidney, but stand in the blood as a retainable reserve, ready to be drawn upon by the tissues as need may arise.

To mal-assimilation of carbohydrate food is to be assigned the error existing in diabetes, and what is wanted to be effected by treatment is

RESTORATION OF THE DEFECTIVE ASSIMILATIVE POWER.

Restore this power, and the patient will be no longer diabetic. Assimilative power being restored, he will then be able to take carbohydrate, and this, meeting with the power to assimilate it, will no longer pass through the system as sugar to be thrown out as waste material with the urine.

Restoration of carbohydrate assimilative power, then, is the goal of the medical practitioner in the treatment of diabetes. For the attainment of his object, it may without hesitation be said that food is the prime factor to be brought into play. Sugar in the system is the baneful agent, and unless this is brought down, no real good can be expected to arrive. The toxicity of the sugar will nullify every other effort. If the sugar can be reduced and removed, the foundation is laid for the desired restoration of assimilative power, whilst in the absence of its reduction, the condition, with varying degrees of rapidity in different cases, may be reckoned upon to grow worse and worse.

This being found from practical experience to be the case, any hypothesis which encourages the idea that it is a natural condition for free sugar to be reaching the circulatory system from carbohydrate food acts detrimentally to the interests of the art of medicine by suggesting the absence of the need for putting into force the one measure that the circumstances show to be essential for beneficial treatment. Upon these premises, the medical practitioner has ground for exclaiming against the misguiding influence derived from his physiological training. But physiologists see nothing of the testing of the truth of their teaching that is afforded by the application of endeavours to correct the physiological error constituting the source of diabetes, and they thereby are shut off from the enlightenment contributed by practical medical experience.

It will be seen that under this view the error is located in the first link of the metabolic chain instead of the last, which is assigned as its seat under the glycogenic doctrine. There is absolutely nothing to lend support to the view that the fault in diabetes (the simple or alimentary form of it) consists of a non-consumption of carbohydrate, except in so far as consumption is prevented by exit in the form of sugar with the urine in consequence of being permitted to enter the circulation as free sugar.

With faulty assimilation, as represented, at the foundation of diabetes, it is perfectly intelligible how it is that sugar finds its way into the urine from the food. From the principle of action involved, it is also explicable how the blood and urine under normal conditions remain unaffected, in relation to sugar content, in the face of the very varying quantities of carbohydrate ingested. Under all circumstances, alike in health and diabetes, as long as the carbohydrate taken is within the assimilative power existing, it becomes assimilated, and thence fails to reach the blood and urine as sugar, whilst should it surpass in amount the power existing to assimilate it, that which is not assimilated will find its way as sugar into both blood and urine.

This harmonises with what is observed in cases of diabetes in which the curtailment of carbohydrate tolerating power is susceptible of being displayed—that is, in the alimentary type of the disease. Experience tells us that varied extents of tolerating capacity are found to exist and that they are associated with a very sharp boundary line. The ingestion of carbohydrate within a given quantity fails to produce any visible effect, whilst if the given quantity is exceeded by ever so little, sugar is discoverable in the urine in proportion to the extent to which the line has been overstepped. It is easy to understand that there may be a definitely limited assimilative power—indeed, there is a definite limit to the assimilative power existing in the healthy state—and that whilst the power that exists surpasses that required for the work to be performed, there will be no show of anything wrong, whereas if the work to be performed—the amount of carbohydrate to be assimilated—should exceed the power to perform it, the effect will be that the work which escapes being performed will render itself manifest by the unassimilated carbohydrate passing into the circulation as sugar, and thence flowing off with the urine.

Regarded in this way our position in relation to the management of diabetes becomes one of great clearness and simplicity. We know precisely the ground upon which we stand, and can shape our measures into form with great definiteness to bring about a desired result. How, on the other hand, does the matter stand under the supposition that it is natural for the food carbohydrate to traverse the circulation in the form of sugar? Not the slightest relationship is discoverable between the proposition and the working result obtained. Whatever may be effected by the measure adopted, no rational explanation applicable to it can be educed from the proposition.

Restoration of carbohydrate assimilative power is, as I have said, the great object to be attained in the treatment of diabetes and, as I have further said, for the attainment of this object, it is necessary to reduce and remove, by dietetic measures, the sugar which is acting perniciously in traversing the system. The primary effect of the removal of sugar from the urine is to bring back health and strength to the patient. Virtually, as long as the urine is maintained in a sugar-free state, there is nothing to exert a damaging influence upon the system, and the only perceptible difference existing between a patient in this state and a healthy person is the different effect arising from partaking of carbohydrate food. Only when such food is taken beyond the power existing to assimilate it does the patient betray the existence of anything wrong.

Restoration of health is something for the patient to be thankful for, but this is by no means all that the removal of sugar from the urine by proper dieting effects. By maintaining a sugar-free state of urine—in other words, by maintaining a normal state of things within the system,—Nature steps in and starts mending what is wrong by reinstating the lost assimilative power. In this way there occurs a reversal of what happens whilst sugar is pervading the system, for here there is an advancing loss taking place, as is testified by the progressive growth of a case previous to the disease being recognised and dietetic treatment adopted. At first the condition may be mild, so much so as not to excite attention, when it may be taken that a considerable amount of assimilative power exists, and then, with the growth of the symptoms, a fall of power must obviously be taking place.

When a case falls under observation, everything depends, with respect to capacity for and

SPEEDINESS OF RESTORATION OF ASSIMILATIVE POWER,

upon the extent to which the disease has become developed. If only of recent onset, a few days may suffice for the removal of the sugar, and, shortly after, for signs to present themselves of returning power; whilst if the disease has, through faulty management, been allowed to run on into the development of a thoroughly established condition associated with marked acidosis, the prospect is a poor one of being able to bring about the requisite control of sugar elimination to permit of anything otherwise than continued progress in a wrong direction being looked for. The presence of acidosis is not by any means, it may be said, to be regarded as a bar to subsequent satisfactory progress. It is the point to which it has advanced that determines the issue. I have known cases where more or less return of assimilative power has occurred notwithstanding a considerable amount of acidosis has existed to start upon.

BEST COPY AV

When the setting in of restoration of carbohydrate assimilative power will occur, cannot in any case be predicted. It may be within a few weeks, or a few months, or it may be delayed for a few years. A striking instance of long delay is afforded by the following case of a patient who was 42 years of age when he first came to me on Oct. 14th, 1904. He was then in a very broken-down state and his urine contained 71·4 per 1000 of sugar associated with a certain amount of diacetic acid and acetone. Notwithstanding close attention to a properly restricted diet, the declining sugar did not disappear till the end of about six weeks. On Nov. 18th there was a little sugar present, but on Dec. 3rd there was none. The patient became restored to health and continued on the strict diet till July 28th, 1906, before any sign was afforded of returning assimilative power. Acting upon the indication then presented, three ounces of ordinary wheaten bread per diem were tried and found to be tolerated. At the end of September there were indications of further restoration of assimilative power, and the bread was increased to four and a half ounces per diem without any return of sugar. No further indication of growth of power has since appeared, and the patient, who was last seen on Nov. 14th, 1908, is so far maintaining a perfect state of health with food adjusted to the curtailed carbohydrate assimilative power that he possesses.

The

### RETURN OF ASSIMILATIVE POWER IS REVEALED BY UNMISTAKEABLE SIGNS.

These consist of a fall in weight and a bodily feeling of sinking or food want. As long as there is no return of assimilative power, the restricted diet suffices to meet the requirements of the system, and a proper state of equilibrium exists within. Not so, however, when restoration of carbohydrate assimilative power has taken place. Here the restricted diet, as in the healthy person, fails to meet the demands of life and Nature reveals it through the signs that have been referred to. Whilst no carbohydrate assimilative power exists, a supply of carbohydrate cannot be needed by the system. When, however, the power becomes restored, carbohydrate becomes immediately to a proportionate extent wanted—a fact that is plainly shown by Nature's revelations. These revelations, associated with sugar-free urine, may be safely read as meaning the setting in of returning assimilative power, and that action should be taken accordingly. The action needed is the supply at first of a limited amount of starchy food. The urine immediately tells the tale if too much is given. Afterwards, the starchy food must be increased as the restoration of power advances, always keeping the amount given within the boundary line of the power existing.

The

### EXTENT TO WHICH THE ASSIMILATIVE POWER BECOMES RESTORED

varies greatly in different cases, but in each a sharply defined line throughout the progress exists. In a certain number of instances it becomes restored completely, which implies that the attack of diabetes has been in a direct manner thrown off. It is usual for it to become restored up to a certain point, and there to remain more or less fixed. If a patient, in the presence of these circumstances, should take carbohydrate food beyond the power existing to assimilate it, and thus give rise to a renewal of the transit of sugar through the system, the assimilative power will again decrease, and should a marked amount be allowed to pass through, the condition may be expected in the course of time to become as bad as it was at the beginning, if not even worse. It is in this way that relapses take place, and for the maintenance of a satisfactory state, the maintenance of sugar-free urine constitutes a *sine quâ non*. The sugar that pervades the system as an effect of the disease thus becomes a paramount factor in relation to issue.

The class of case upon which the remarks I have made have been based is that belonging to the "alimentary" type, which is the common form met with in patients above the middle period of life. Ordinarily in young subjects the case at the beginning runs upon the lines that have been depicted, but later, on account of the existence of an inherent progressiveness, the treatment which at one time succeeded in keeping things right fails any longer to do so, and a relentless onward march ensues. Progress into the "composite" or bad type is not always to be averted in later years, but it is very much accelerated by improper dietetic management, and when the advanced stage is reached, the case, on account of sugar being derived from tissue disintegration as well as from food, is naturally no longer susceptible of being influenced by diet in precisely the same manner as whilst belonging to the "alimentary" type. Unfortunately for the training of the student, the class of case that is usually met with in the hospital belongs to the "composite" and not to the "alimentary" type.

It is something to achieve to be able to effect a restoration of assimilative power that will permit of a certain quantity of starchy food being taken. The patient is placed in a much less difficult and much more comfortable position. I first hinted at the recovery of the power in the supplementary Croonian lecture delivered by me at the Royal College of Physicians of London in November, 1897,[5] and subsequently, in a communication published in THE LANCET in 1900[6] under the title of "Differentiation in Diabetes," I entered into a detailed consideration of the matter. The subject has also been fully dealt with in the section on diabetes contained in my work on "Carbohydrate Metabolism and Diabetes," 1906, and notwithstanding the light that the information throws upon the whole question concerned, and the satisfactory basis that it supplies in connexion with the application of treatment, I have not seen that the attention it deserves has been given to it.

It follows from what has preceded that the physician is dependent for success in treatment upon the character of the food that is available for his patient. Through the incentive that has been created for meeting the demand that has arisen for a pure and palatable

### DIABETIC BREAD-STUFF,

endeavours have been successfully applied in the direction needed, and there are now establishments in London from which the diabetic can reliably obtain his required supply. At the same time, there are foods produced and sold under the name of diabetic foods that are not entitled to receive this designation, and they constitute the source of a great amount of harm. Many are no better than ordinary domestic foods, and others contain too much carbohydrate to permit of its being possible, in the usual run of case, to get rid of the sugar from the urine.

In illustration I may refer to some foods that fell under my notice about a year ago in the following way. In connexion with the case of a boy patient, a physician from Paris on a visit to London was, at the request of an uncle residing in France, permitted to see the patient, and on his return home dispatched a parcel of diabetic foods obtained from a well-known supply establishment in Paris. Here are the figures showing the percentage of carbohydrate expressed as starch that they contained in the water-free state, into which, for apt comparison, all foods should be brought previously to analysis:—

| | Carbohydrate as starch. |
|---|---|
| Gluten flour ... ... ... ... | 72·0 per cent. |
| ,, bread ... ... ... ... | 50·0 ,, |
| ,, biscuit ... ... ... ... | 54·7 ,, |
| Granulated gluten ... ... ... | 63·9 ,, |

Food supplied by Rademann of Frankfurt was referred to when I was speaking of Professor von Noorden's "oat" cure. Samples were obtained from this maker at the early part of the present year, and the figures here given show the percentage of starch present in the articles in the water-free state. An improvement is perceptible upon the figures previously yielded:—

| | Carbohydrate as starch. |
|---|---|
| Diabetic white bread ... ... | 47·2 per cent. |
| Diabetic Graham bread ... ... | 40·8 ,, |
| Diabetic black bread ... ... | 41·9 ,, |
| "D.K." bread ... ... ... ... | 74·5 ,, |
| Diabetic rusks ... ... ... ... | 46·5 ,, |
| Diabetic cakes ... ... ... ... | 44·4 ,, |
| Diabetic meal ... ... ... ... | 62·0 ,, |

I have said nothing about drug treatment, and for the reason that I know of nothing that by itself exerts a direct and immediate arresting influence over the elimination of sugar. In reality, something is wanted to set metabolism right, in like manner as it is set right by the thyroid extract

[5] Brit. Med. Jour., 1897, vol. ii.
[6] THE LANCET, June 16th, 1900, p. 1706 et seq.

OPY AVAILABLE

in myxœdema. This something has not yet been discovered, but science ought sooner or later to place us in a better position than we at present stand in relation to the matter. We, however, know that metabolism is influenced through the instrumentality of the nervous system, and this is suggestive that it may, in connexion with the point under consideration, be likewise open to being influenced in a collateral way by drug agency. I am a strong believer in help being given towards promoting the restoration of carbohydrate assimilative power by the administration of opium and some of its derivatives.

# THE AGGLUTINATING POWER IN TUBERCULOUS PATIENTS: SERUM DIAGNOSIS AND SERUM PROGNOSIS.[1]

BY PROFESSOR PAUL COURMONT,
OF THE UNIVERSITY OF LYONS.

THE serum diagnosis of tuberculosis is one of the most commonly employed and most certain of the laboratory methods for the diagnosis of tuberculosis. It is practised, like that of typhoid fever, by mixing the serum of the patient with a certain quantity of liquid homogeneous culture of the bacillus of tuberculosis.

## I.—*Historical.*

It is known that the usual culture of the bacillus of Koch cannot be utilised for agglutination. It was Professor Arloing who, in 1898, having obtained a fluid homogeneous culture of the bacillus of Koch, produced agglutination by serum procured from tuberculous patients or animals, and thus introduced the serum diagnosis of tuberculosis. Professor Arloing and myself then perfected the method, determined the best manner of cultivating the homogeneous cultures, applied the sero-diagnostic method to hundreds of patients, and made observations on the agglutinating power of blood in them and in animals which had been rendered tuberculous. I have investigated from a diagnostic point of view the nature of morbid serous fluids by means of the agglutinating power of those effusions, and have also examined pleuritic effusions with a view of obtaining aid in relation to prognosis.

The Lyonese method is now employed almost everywhere; opinions on this question are very numerous; and many authorities can be cited who have confirmed our conclusions. If some observers have contested the importance and value of serum diagnosis this arises from their not having avoided the sources of error.[2]

## II.—*Proofs of the Value of the Serum Diagnosis.*

The best proofs are the good practical results which have been obtained by means of serum diagnosis by a great number of observers. But there are two kinds of proofs which are specially conclusive.

1. *Statistical data obtained from bovine animals.*—In cows statistics can be collected in which the serum reaction can be confirmed by necropsy. Under these conditions Professor Arloing has proved that the serum diagnostic test is always negative when the cow is not tuberculous and positive in 90 per cent. when tuberculous lesions are present.

2. *Statistical data in regard to tuberculous pleurisy in man.*—In pleurisy occurring in the human subject the tuberculous or simple nature of the malady can be determined by the clinical phenomena and by means of inoculation and cytology combined. In such conditions amongst 112 cases we have never had a positive reaction with the pleuritic fluid when the pleurisy was not tuberculous; on the contrary, we had 76 per cent. of positive reactions when the pleurisy was tuberculous. If the results of the sero-agglutination with the blood serum of human beings (tuberculous or not) are apparently less easy to interpret, this is due to the variations of the agglutinating power according to the form, the gravity, the course, or curability of the lesions, according to the age of the subject.

## III.—*Comparison of Serum Diagnosis and Tuberculin Reactions.—Advantages of Serum Reactions.*

If one compares the results given by serum diagnosis and tuberculin reactions (subcutaneous injections or ophthalmo-reaction) one sees that these methods give similar results but all advantages rest with serum diagnosis. With these three methods the results are positive in most cases of active tuberculosis, the cases which give no reactions being often the gravest; for instance, in advanced consumption. With these three methods the results are positive in a fairly large number of cases in which neither the clinical examination nor even sometimes the necropsy can discover tuberculosis. The concordance of the results proves that there is latent tuberculosis with very slight lesions often compatible with good health and which can only be discovered by very delicate laboratory methods.

It is also extremely remarkable that injection of tuberculin and serum diagnosis give about the same percentage of positive reactions in patients who are not evidently tuberculous (40 per cent. with serum diagnosis and 46 per cent. with tuberculin, according to Beck). It is also curious to see that the ophthalmo-reaction is positive in the typhoid cases just as the serum reaction is. At any rate, the few objections which one can make to serum diagnosis (errors occurring in feverish cases and in typhoid fever, and the too great sensitiveness of the method which responds to the slightest tuberculous conditions, even those compatible with health) apply equally to the injection of tuberculin and to the ophthalmo-reaction, as has been explained above.

The great advantages of the serum diagnosis are the following:—

1. *Absolute harmlessness*, since the taking of a little blood cannot give rise to accidents or inconvenience, which cannot always be said of the tuberculin and ophthalmo-reactions.

2. *Facility of application*, since a few drops of blood suffice and it is not necessary to watch the patients during the course of several days, as in the other two methods.

3. *Importance of the variations of the agglutinating power.*—Given the harmlessness and facility of application one can repeat the reaction as often as one likes, and the variations of the agglutinating power are of great importance not only for the diagnosis but also for the prognosis.

4. *Applications of local serum diagnosis*, which is impossible with any other method.

## IV.—*Local Serum Diagnosis.*

The serum reaction is generally made with blood serum; in this case it gives only a general serum diagnosis, simply proving the general specific impregnation of the blood with a given infection, no matter where the lesions may be. But we have demonstrated recently the possibility and the good results of a local serum diagnosis. This is made with local effusion of the serous membranes, for instance, in pleurisy. We have proved that when a serous membrane is infected by tuberculosis a local reaction is produced and agglutinins are formed locally, independently of what happens in the blood. The positive serum reaction with the pleural fluid furnishes the proof of the local tuberculosis. Our numerous works on the subject (more than 200 cases of effusions, of which 115 were tuberculous pleurisies) have been confirmed by Mongour and Buard, Widal and Ravaut, Dieulafoy, Landouzy, Sabareanu and Salomon, Hawthorn in France; Bendix in Germany; Kazarinow in Russia; Marini, Marchetti, and Stefanelli in Italy, and other authors whose statistics are absolutely in accord with ours. The most conclusive results are given by pleuritic effusions. The fluid from tuberculous pleurisies produced agglutination (76 per cent. of the cases in adults out of 115 cases). Negative cases, although tuberculous, occurred almost entirely in the graver forms. The non-tuberculous fluids are not agglutinated even in a strength of 1 in 5 (with the exception of two or three doubtful cases). The agglutinating power of tuberculous fluids is ordinarily less powerful than that of the blood serum; but it may be sometimes more powerful, or can exist only in the pleuritic fluid and not in the blood. It would therefore seem that the pleural membrane can produce *in loco* an agglutinative substance.

In practice: 1. A positive serum reaction is a sign of great value in favour of the tuberculous nature of pleurisies. A careful comparison of the serum diagnosis with the cytology and the results of inoculation of fluid in the guinea-pig prove the absolute accordance of the three

[1] Résumé of a paper read at the International Congress on Tuberculosis at Washington, 1908 (Section II.).

[2] The causes of error are discussed in detail in the paper published in the Proceedings of the Congress of Washington.

methods. The serum diagnosis has the advantage of greater facility and rapidity; one does not need the constant presence of the patient, a few drops of fluid suffice, and one can easily carry this little quantity of fluid for examination. 2. Negative reaction only constitutes a presumption against the diagnosis of tuberculosis. One must in this case repeat the test. 3. The comparison of the agglutinating power of the blood with that of pleural fluid would give interesting results. One can apply the same conclusions to the diagnosis of other pathological fluids (especially ascites and hydrarthrosis) except the cerebro-spinal, which is never agglutinative.

### V.—*Serum Prognosis.*

The general idea of serum prognosis in disease and the signification of the agglutinating reaction in the evolution of the infectious maladies was proposed by us for the first time in 1896–97 *àpropos* of typhoid fever. We have demonstrated that the degree of the agglutinating power of the blood is the more powerful if the infection is less grave and the resistance of the subject is greater. This is probably applicable to all infectious diseases running a typical course. For tuberculosis the question is more complicated on account of the variability of the forms and the duration of the illness. But it would be as important as it is difficult to establish the prognosis of the illness by the varying agglutinating power in tuberculous patients. Since this date we have said[3] with Professor Arloing: "The agglutinating power seems to be inverse to the gravity of the infection"; and in 1900 we arrived at the same conclusions by animals rendered artificially tuberculous.

The principal arguments on which serum prognosis is based are the following:—

1. *General statistics.*—In tuberculous subjects in whom the serum is not agglutinative from 10 to 15 per cent. are nearly all very seriously ill. The subjects who have advanced consumption, miliary tuberculosis, caseous pneumonia, and meningitis have nearly all a negative serum reaction.

2. *Experiments in animals rendered artificially tuberculous.*—The development of the agglutinating power is the more marked when the tuberculosis is less virulent and the animal more resistant and conversely.

3. *Variations of intensity in the agglutinating power of the tuberculous.*—These variations appear to be dependent on the gravity and progress of the disease. Very marked reactions are found especially in subjects in whom the tuberculosis is slight or becoming quiescent (local tuberculosis of the viscera, fibroid tuberculosis of the lungs, primitive pleural tuberculosis of Landouzy, &c.). Reciprocally slight agglutinations are found especially in patients more seriously ill.

4. *Variations of the agglutinating power in the same subject.*—If one watches for a long period of time a particular tuberculous subject one frequently sees the agglutinating power of his serum rise if the patient improves, and on the contrary fall if the illness becomes worse, and at times even disappears completely. Here are some examples of these two variations:—

(*a*) *Tuberculous pleurisy with a favourable serum prognosis.*—G——, aged 18 years, suffering from tuberculous pleurisy, with effusion, without any other complications; prognosis considered favourable.

*Agglutinating Power of Pleuritic Fluid.*

| | |
|---|---|
| Ninth day ... ... ... ... ... ... ... ... ... ... ... | + 5 |
| Fourteenth day ... ... ... ... ... ... ... ... ... ... | +10 |
| Twenty-first day ... ... ... ... ... ... ... ... ... ... | +15 |

(*b*) *Tuberculosis with an unfavourable serum prognosis.*—M., aged 28 years; pregnancy; double pleurisy with fever, secondary phthisis; death in 96 days.

*Agglutinating Power.*

| | Of blood. | Of pleuritic fluid. |
|---|---|---|
| Twentieth day ... ... ... ... | +10 | ... ... ... ... +5 |
| Fiftieth day ... ... ... ... ... | + 5 | ... ... ... ... 0 |
| Eightieth day ... ... ... ... | 0 | ... ... ... ... 0 |
| Ninty-fifth ... ... ... ... ... | 0 | ... ... ... ... 0 |

In the first case one sees the agglutinating power increasing until recovery ensues, and in the second fall until death ensues.

[3] Congress on Tuberculosis in Berlin.

5. *Mortality of tuberculous pleurisy considered in relation to the agglutinating power of the pleuritic fluid.*—We have studied more than 120 cases of tuberculous pleurisy and kept in touch with the patients during eight years. If one compares the mortality of patients in whom the pleuritic fluids were agglutinous with that of patients of whom the fluid was not agglutinous one arrives at the following conclusions: 75 per cent. of cures in cases of positive reaction; 73 per cent. of deaths in cases of negative reaction.

*Conclusions.*

1. *Value of the method.*—The agglutinating power of serous effusions in tuberculous patients must be considered as a very important point in diagnosis and prognosis. It must be studied in all its variations, according to the ages of the patients, localisation, form and degree of lesions, and also in relation to the subsequent reactions which may be obtained.

2. *Necessary precautions.*—In order to make the investigation valuable sero-reaction must be looked for under the most exact conditions as regards the choice of the culture and the general technique of the reaction.

3. *Limitations of the method.*—Given that the agglutinating power of normal serum varies according to age and also to the animal species investigated, serum reaction has a diagnostic value only when the degree of agglutination is higher than the ordinary degree of agglutinating power of the serum of normal individuals of the same age and belonging to the same species.

4. *Serum diagnosis.*—For practical purposes serum reaction must be applied with great clinical discrimination; its results must be compared with the other symptoms and not interpreted blindly. It would not be wise to regard a patient as clinically tuberculous for the sole reason that his serum agglutinates Koch's bacilli. The reaction can have no diagnostic value unless there are other reasons justifying the suspicion of tuberculosis. *In such cases, however, a positive serum reaction has a great value:* negative reaction is of less value. Diagnostically, serum reaction can be considered from different points of view:—

(*a*) *General reaction* (with blood serum).—It does not give information as regards the location of the lesions and indicates only that the system has been or is actually under the influence of tuberculosis. It will be the clinician's task to interpret this information and to derive from it conclusions concerning the localisation of lesions. The serum diagnosis will be of especial use in children, in old people, and also in adults suffering from chronic or latent forms of tuberculosis. Results pointing to the frequency of latent tuberculosis in adults who clinically do not appear tuberculous are almost the same with serum reaction as with tuberculin test (either subcutaneously or in the eye).

(*b*) *Local serum reaction.*—It consists in testing the agglutinating power of serous effusions and indicates the site of the lesions. It is particularly useful for the diagnosis of tuberculous pleurisy, and its results are in accordance with those given by inoculations or cyto-diagnosis.

5. *Nature and prognostic value of serum reaction in tuberculous patients—serum prognosis.*—As is the case in many other diseases the agglutinating power of blood serum and other organic liquids in tuberculosis is proportional to the resisting power of the patients; furthermore, it is in an inverse ratio with the virulence of infection. Serum reaction is frequently absent in very serious or very advanced cases of tuberculosis. It reaches its maximum height in cases which are in the process of healing. It can diminish or disappear sometimes before death; it can, on the contrary, increase when there is a tendency towards healing or towards arrest. It seems to be an index of the protective reaction of the system.

6. *The study of serum reaction and its variation has a real value in prognosis.*—In tuberculous pleurisy with effusion an increasing agglutinating power carries with it a good prognosis, but failing any reaction one must be prepared sooner or later for a fatal result.

Lyons.

HOSPITAL SUNDAY IN PLYMOUTH.—As a result of the recent Hospital Sunday collections at Plymouth the sum of £739 has been handed to the treasurer of the South Devon and East Cornwall Hospital.

# THE MILK-SUPPLY FOR INFANTS: RECENT ASPECTS AND POSSIBILITIES.

BY WILLIAM EWART, M.D. CANTAB., F.R.C.P. LOND.,
CONSULTING PHYSICIAN TO ST. GEORGE'S HOSPITAL; SENIOR PHYSICIAN TO THE BELGRAVE HOSPITAL FOR CHILDREN, CLAPHAM-ROAD, S.W.

*Human Infants as "Physiological Tests" for Sound Milk.*

GOOD milk for infants is a national concern since physical deterioration of the race and depopulation by infant mortality and by tuberculosis are mainly milk questions. The general milk-supply, which has been a frequent channel for epidemic infections, has been the only one to receive legislative recognition and help. It gets the benefit of a vast experiment in which the test subjects are not animals but human infants and has enjoyed it long before the general adoption of this "physiological testing" for the proving of drugs and of poisons. There are no more sensitive reagents for the quality of milk than delicate infants; they are our expert milk tasters. From their verdict and too often from their painful and slow death (or, in summer, from their rapid decimation) we learn that our average milk as sold to the masses is not all that milk should be. For in our towns it is from the common supply that the plebeian infant as soon as weaned gets his pittance, losing at one stroke, through our neglect, that footing of equality with the well-to-do infant which nature had established for them in the shape of maternal milk and of its dairy substitutes.

*Salus Infantum Suprema Lex.*

The right of the infant to a sound milk-supply is the first of our liberties and its mother should show proof that it is being properly fed, not starved or poisoned. By law British subjects are not permitted to starve; and to guard them from disease everything is jealously watched—in the street, in the farm, and in the house. The only unprotected, and left to perish in their thousands, are the infants. "Infant starvation" is an ugly but true fact. Its causes are the hitherto inadequate teaching of the practical duties of woman; and, secondly, the exclusion of infants and children from that State protection which is extended to adult citizenship. There lies the great cruelty. But whilst we wait for State action a field is open for the benevolent in the practical prevention of cruelty to infants and children, not so much by prosecution as by help of example and of education.

It is appalling that hitherto no provision has been made for a "guaranteed" milk-supply for the infants of the poor. What may be retailed for their use nobody cares and nobody knows. Little wonder that the mortality from infantile diarrhœa should remain to this hour undiminished in spite of the conquests of hygiene in every other direction; for it is but too likely that summer diarrhœa really spells *summer milk poison*. We know, the dairyman may know, but the unfortunate infant's mother does not know. She is not even offered that warning notice of an unsuspected danger which the alternative offer of a "special" if not of a "guaranteed" supply for the infant might have given her.

*The Guiding Principles in the Milk-supply for Bottle-fed Infants. Living Milk and Dead Milk.*

A cursory review of this matter will suffice.

I. There is only one perfect milk for the infant—*the living milk* straight from the breast. This is confirmed by the clinical value of such makeshifts as asses' milk and goats' milk drawn at the infant's residence for immediate use. Among mammalia there is only one instance, our own, of any storage of dead milk for the young.

II. One of the perfections of mother's milk is that it is *highly specialised* for the infant. For it there is no complete substitute, and a satisfactory approximation is often difficult to find.

III. *Singleness of supply* is another of nature's principles. "To each infant its own cow," provided the best cow for it can be found. But in practice well-known objections are apt to arise.

IV. *Sustained quality* of the single supply is the most important but the least probable attainment. The quality of mother's milk will often vary, but its fluctuations are human. Those due to bovine distempers are more serious to bear and slower for infants to get over. It may be best to seek safety in numbers, and after all to administer herd milk—on the plan of inuring the infant to constant variety—for in milk feeding habit plays its part as in the rest of physiology.

V. Again, in its composition nursery milk should be the nearest approach to the maternal. This involves an artificial rearrangement of the constituents of dairy milk, and this is the great principle of *percentage milk*, which Professor T. Morgan Rotch of Boston has elaborated and applied, and to which further reference will be made.

VI. *The sine quâ non is absolute freedom from the agents of disease*, whether as in scurvy-rickets they be special to the milk or, as in tuberculosis and all other infections, imported into it. Absolute safety from infection must be insured in infants' milk at any cost, and by some method which cannot possibly ever fail in the working. An absolutely sterile milk is the only adequate safeguard. But so long as we cannot avoid using dead milk we must be quite sure that it has not lost those qualities of living milk which are essential.

*The Defects and Risks of the Common Milk-supply.*

We cannot but marvel at the insecure equilibrium of our safety among many modern dangers too giddy for thought. And this applies also to our milk-supply. Day after day nothing happens (at any rate perceptible at the surface) until something does happen, and it is a catastrophe in the shape of some epidemic. The best of dairy systems for the million must accidentally break down now and again, and it seems to have been hitherto impossible to guarantee any milk in the slums. Nevertheless, great improvements have taken place within the last few decennia under the persistent pressure of professional opinion and of the medical press and through the untiring efforts of our public health officers. Thanks to legislation, and also, it is only fair to add, to the willingness and coöperation of the rank and file of the milk trade, the average quality of the ordinary milk as a food, particularly in respect of the percentage of its normal constituents, has improved considerably and we have heard much less of milk epidemics. But it is our business to criticise, and there is still much to be done.

From the special point of view of infants the inherent evils or imperfections are the following: (1) the evil of promiscuousness of supply, (2) the evil of seasonal and alimentary fluctuations, and (3) the evil of health fluctuations in the cow. To these must be added: (4) the prevalent but avoidable evil of chemical adulteration with milk preservatives. Accidental risks are also ever present—namely: (5) the risk of pollution,[2] (6) the risk of infective contamination, and (7) the risk of fermentation.

Special attention has been called to the magnitude of the evil from *adulteration with preservatives* by the report of the Departmental Committee of Inquiry into the Use of Preservatives in Food, London, 1901. This evil had passed unsuspected, though comparatively little milk had escaped drugging, leaving often no practical alternative for the local consumer. Infants who are exclusive milk feeders are with a few invalids the only ones to tell the tale, as a mixed diet confuses the issue. By them any adulterant is ingested in a much higher proportion to the total food-supply and up to a poisonous dose. This is shown by a growing distaste, dyspepsia, and finally absolute intolerance for the milk, which at last is immediately rejected. After unsuccessful trials of further dilutions milk feeding from the common supply comes to an end. Our infants are thus made to serve as our physiological poison tests; but whilst they turn from the cup we continue to use it. Their health or their life will have been sacrificed in vain if the conclusion is not enforced that milk preservation by chemicals must cease.

As regards contamination, in addition to the original pollution, the "open system" of retailing in the slums is also a remediable danger. All milk used for infants should be sealed. But in view of practical impossibilities the great majority of infants must depend upon herd-milk. The risk is then multiplied by the number of the herd, although it is true that the individual faulty milk, if there be any, is proportionately diluted.

The sealed supply of our best kind of fresh milk for infants is good and, with certain reservations, reliable. It is the

[1] From notes of a demonstration held at the Medical Graduates' College and Polyclinic on Oct. 20th, 1908.

[2] Cf. THE LANCET, editorial article, The Pollution of Milk, Oct. 24th, 1908, p. 1226.

greater pity that its quality must remain *a matter of trust* and not of demonstration. Absolute security based upon strict evidence cannot be obtained day by day for each day's supply. There is no simple test to be applied on the spot like the test which we apply to a coin. Our position is one of uncertainty: *Caveat emptor.*

In conclusion, it would perhaps not be far wrong to say of the present milk-supply that at its best it is still precarious, that in its lower grades it needs reform, and that *in regard to the infants* of the poor it is a scandal and a scourge.

*The Personal Factor in Digestion and the Individual Quality in the Milk.*

We cannot overlook the fact that there are unusual subjects and unusual conditions not suited by ordinary supplies, besides the so-called "milk idiosyncrasies" where even mother's milk may not be tolerated. As regards cow's milk, incompatibility is the exception. The majority of cows yield digestible milk and the great majority of infants put up with the milk supplied to them. Absolute idiosyncrasy against all milk of any kind whatsoever is rare. But the genuineness of this absolute exclusiveness has perhaps not had its full test in the past for want of a sufficient assortment of milks.

*Acquired intolerance*, induced by gastro-enteritis or some other accident of health, is fortunately temporary and not intractable. The beginning of some of these gastro-intestinal catarrhs may be an insidious, ingravescent dyspepsia from long-continued alimentary disappointment in susceptible stomachs. The larger group illustrating the personal factor is that in which an idiosyncrasy exists for some milks only. For some of these infants vomiting is the safeguard against the risk of indigestion. But others, deficient in selective instinct, do not protect themselves in this way and incur the resulting apepsia and athrepsia. Some special milk has to be found which may chance to suit and to be properly digested, and if found the supply had better be continued. For all these cases a wider range of choice in milk would be a boon. Infants for whom bottle milk has to be provided may therefore be arranged into three groups: Group 1, the normal infants; Group 2, the normal infants accidentally turned into milk dyspeptics; and Group 3, the abnormal infants, with varying degrees of idiosyncrasy—a growing class in our generation.

*The requirements special to the three groups, and percentage milk.*—It is in the management of the temporary difficulties of Group 2 and of those permanently belonging to Group 3 that Rotch's system is most helpful. It goes beyond the principle "for each infant its own milk," in undertaking to supply "for each infant's mood its own milk." For the present we cannot work it on the vast scale required for the masses. As a fact it is most needed by a relatively small number; and it is superfluous to make provision for the mass just on the narrow lines suited for the minority. Percentage feeding is required every day for the sick stomachs of Group 2; and in its absence it taxes the highest skill, and too often baffles the mother, to find a life-sustaining substitute. This may perhaps be more readily found in the near future. At any rate our policy is clearly that of *prevention* by providing for Group 1 the good, health-preserving milk-supply which has been wanting. If only given a fair chance in this the vast majority of infants will cause little trouble.

*The Infant as a "Strong Feeder."*

Non-dyspeptic adults, with little thought for longevity, are hardened sinners against the law of percentage feeding. They are "strong feeders"—indifferent to the dead weight which exercises the vigour of their peristalsis. Strong feeders, too, are their breed. The ordinary infant thrives on the excess of his intestinal fulness and function and qualifies from the cradle for a "big eater" through overflowing supplies from the cow. The frugality of percentage feeding might correct that bias. But the objection might be whispered that it is an "unwise concession." It has been alleged that we have already sacrificed the hardness of our teeth to the softness of our food. Is it to the advantage of the race that we interfere with the primitive roughness of these intestinal athletics? We can afford to waive that discussion, as the urgently needed remedy is not at present obtainable from that quarter. What we do want is *an absolutely sound and absolutely reliable constant supply of best quality milk for infants.* The easy fulfilment of this requirement is perhaps in our hands this day.

[Dr. Ewart here exhibited to his audience samples of the stored milk supplied to him by the Vacca Milk Company, Limited, of Amsterdam, to which he had given an extensive trial at the instance of Mr. A. F. Bilderbeck Gomess. Dr. Ewart instanced a bacteriological report made by Dr. Klein to the effect that the milk had been effectively sterilised without boiling and retained in a sterile condition without the use of preservatives, while he quoted from the analytical reports of THE LANCET[3] as emphasising the fact that no "boiled" flavour was present. He added the results of his clinical inquiry to show that the milk, which has been used for export to the tropics rather than for the feeding of infants, might have a great future in the latter direction as it is digestible, produces no scorbutic symptoms, and children thrive upon it.]

## A CASE OF NEURASTHENIA COMPLICATED WITH (?) "VASO-VAGAL ATTACKS."

BY MILDRED M. BURGESS, M.D. LOND.

IN THE LANCET of June 8th, 1907, a lecture by Sir William Gowers is published on the subject of "Vagal and Vaso-Vagal Attacks." The patient, whose condition is described below, suffered from "attacks" which apparently come under the same category.

*History of the case.*—The patient was a woman, aged 39 years. Her father and one sister died from morbus cordis, the former from aortic disease and the latter from "enlarged heart and dropsy." Before the present illness began she had lived an exceedingly active, energetic, and vigorous life. She was brought up in the country and went in for sports of all kind. At about the age of 23 years she trained as a nurse at a London hospital and subsequently did district nursing. Although full of energy she was never very robust and had been told that she had a "weak heart." Four years ago she went to South Africa and for six months was sister at a miners' hospital. She worked at very high pressure as she was single-handed. While she was there an epidemic of typhoid fever occurred, during which time she took day and night duty continuously for a month, getting only snatches of sleep in a deck chair. After leaving the hospital she went up to East Africa and camped out there for seven months. She thought that she had "a touch of the sun" during this period. From that time until she came under treatment in March last she never felt well. Two years ago she returned home and has since done occasional nursing, but not without much mental and bodily fatigue.

*General condition.*—The object of this article is to describe the definite "vaso-vagal attacks," but apart from these the patient also showed typical neurasthenic symptoms. She was always more or less tired, was very irritable at times, had lost all power of concentration, and occasionally was melancholic. She was thin and sallow, had no appetite, and was very constipated. There were tremor and twitching of the muscles of the hands and the tongue was tremulous. She complained that at times she felt very "dished," but this was the only indication she gave, in describing her symptoms, that she was suffering from definite "attacks." The nature of these was only discovered when the patient was under close observation. The physical examination was interesting as showing absolutely nothing organically wrong in any part of the body. The heart was not enlarged and the only irregularity was an occasional systolic murmur at the apex. The action of the heart was feeble, at times irregular; the sounds at the base were hardly heard in a recumbent position. The rate of the heart beats was inordinately quickened on moving from a recumbent to an upright position. The pulse ordinarily was slow, ranging between 60 and 70. The temperature was nearly always subnormal, ranging from 96·8° to 98·4° F., the latter being reached only six times in three weeks.

*Description of "vaso-vagal attacks."*—The attacks came on quite suddenly with a sense of extreme fatigue, amounting almost to loss of power. The patient usually turned to one side and lay quite flaccid and motionless. The extremities

[3] THE LANCET, March 8th, 1902, p. 675.

were cold and there was increasing pallor until the face became ashy grey. The skin was dry; there was no cold, clammy perspiration, as in an ordinary fainting attack. Consciousness was never lost, but there was present the sense of impending death. The pupils dilated in the worst attack and in all the eyelids were kept separated; the eyes rolled slightly and blinking was almost arrested for the time. The pulse became exceedingly infrequent, of low tension, and at times almost imperceptible to the touch; the breathing was shallow, hurried, and costal in type. The patient did not willingly speak but answered in monosyllables if spoken to. She was so "bowled over" that she had no energy even to call attention to her condition. Until the nurse was told to be on the watch for the attacks she would have one and recover without its being noticed, and she would merely remark afterwards that she had felt "dished" again. The attacks ended with a deep-drawn breath or sigh and if anyone was sitting by her she would remark, "That's all over now, I am better again." The attacks were very alarming. They in no way resembled an ordinary fainting attack. Their duration was about ten minutes.

*Frequency of attacks.*—She definitely remembers the first attack she had, which was while she was in East Africa. Subsequently she had them at intervals of weeks and later of days after any severe exertion. When she came under observation she was having one about every other day, except on one occasion when she had two in one day.

*Mental state.*—Sir William Gowers notes in his lecture "that with the vagal symptoms there is often a slight mental change and disturbance of the vaso-motor centre causing constriction of the vessels and coldness especially of the extremities." In addition to the extreme sensation of fatigue felt at the commencement of the attacks the patient was in a very unstable mental state generally. At times she would be very excited, her condition resembling the first stage of alcoholic intoxication. She would be intensely funny, make the most ludicrous, sometimes clever and sometimes senseless remarks; she would be very restless, "longing to get out of bed, and fly away." She followed up suggestions rapidly and talked and laughed incessantly. These attacks if uncontrolled lasted hours, but she could calm herself by a great effort of the will in from half to three-quarters of an hour. As she recovered, these excitable states lessened in frequency and severity, simply showing themselves in high spirits. The excitable state generally followed a condition of extreme depression with or without a definite "vagal attack." During these depressed periods she would be very irritable and melancholic. Both the excitable and the depressed states began and ended suddenly. She was wont to liken herself to Mother Hubbard's dog, whose mistress—

> "Went to the joiner's to buy him a coffin,
> And when she came back the dog was a 'laffin'."

A vaso-motor change was also noticed in connexion with these states. During the former she had a good colour, was even flushed, and looked very fit. During the latter she was pale, thin, and drawn, and often grey looking.

*Treatment.*—The general treatment was a modified Weir Mitchell. She was kept absolutely in bed and at rest and had abundant but not excessive diet, four pints of milk in 24 hours in addition to three substantial meals. The attacks themselves were shortened by the use of brandy or sal-volatile or both, and on several occasions hypodermic injections of strychnine had to be given. Easton's syrup was beneficial but she developed spasm of the abdominal muscles even with small doses of strychnine, so a mixture resembling Easton's syrup but with digitalis substituted for strychnine was ordered. The latter drug was more useful than anything else. It was not tried at first on account of the slow pulse. After she had been taking this mixture for some time she developed strangury and frequency of micturition. The spasm was so severe as to squeeze out some drops of blood. As there was nothing abnormal in the urine, I thought it probably due to some ingredient in the mixture, and added tincture of belladonna. She continued to take this without further trouble. The rapidity with which she developed poisonous symptoms with quite small doses of drugs which otherwise were acting so beneficially made the case somewhat difficult to treat.

*Present state.*—For a month there was little improvement in her condition, but from that time there has been steady progress. The attacks became less frequent and she was apparently well as long as she was resting in bed. The exertion of getting up caused a recurrence of the attacks at first, but a few days' rest in bed enabled her to repeat the experiment without ill effects. The same results occurred each time she made a fresh effort of any kind. She was under close observation for 14 weeks and then went into the country for two months. Although the attacks ceased she still had definite bouts of extreme fatigue and a feeling of old age. At these times, which occurred distinctly at the end of each fortnight, she would be very sallow, lacking energy, and drowsy, often sleeping day and night. They usually ended in a burst of excitement. She also had occasionally a feeling in the cardiac region which she described as "if the blood wanted to get through the heart but could not." At these times she was breathless. She is now able to undergo considerable muscular exertion, has bicycled, and apparently is perfectly well. She has gained in weight, has a good colour, and sleeps soundly. Her mental state is normal. She is still taking digitalis with carminatives, but without iron and quinine, as when she stops this she develops unpleasant sensations in the cardiac region and feels fatigued.

*Subsequent note.*—Nov. 23rd, 1908. The patient's condition has improved considerably. She had two slight "attacks" in January of this year, but none since. Her mental state is normal and she can lead an ordinary life. The day following any special exertion she gets breathless and the heart drops a beat at varying intervals. There is no regularity in the intermission of the beats, the intervals between the missed beat being never the same twice. In addition to the digitalis mixture I find trinitrin useful for this irregularity but she requires 1-20th of a grain to produce any effect.

*Comments.*—Although the attacks were so exceedingly serious and threatened to end the patient's life, yet there was apparently nothing in the local condition of the heart to point to a serious lesion. Between the attacks the patient suffered from no heart symptoms, no dyspnœa, œdema, palpitation, or flushing. Her condition, taken as a whole, seemed to indicate instability of the circulatory mechanism. Whether this was due to an affection of the vaso-motor centre in the brain (possibly dependent upon an attack of sunstroke while in East Africa), or to the effects of tropical heat or light on the blood-vessels of the surface of the body, or to some toxin circulating in the blood affecting the heart or vaso-motor system is uncertain. Dr. F. W. Hewitt in his lectures on General Surgical Anæsthesia[1] describes the clinical phenomena of circulatory surgical shock as slowing, feebleness, and irregularity of the pulse, coupled with pallor, coldness, and perspiration of the nose, forehead, and other parts, separation of the eyelids, a lessening in the depth of respiration, and in severe cases dilatation of the pupils. Apart from the perspiration this is an exact description of the condition of the patient during an attack. Later he says: "The clinical phenomena ..... would seem to indicate that the surgical stimuli acting through sensory or sympathetic nerves primarily affect in most cases both the cardio-inhibitory and vaso-motor centres, with the result that a fall in blood pressure takes place ..... According to Crile, the condition is principally one of vaso-motor paralysis brought about by the nerve injury paralysing the main vaso-motor centres, the result of the paralysis being a fall of blood pressure and an accumulation of blood within the venous system and particularly within the vessels of the splanchnic area."

Whether in this case there was some affection of the vaso-motor centre alone which secondarily caused the bradycardia or whether the cardio-inhibitory centre was also affected is uncertain. The evidence seems to point to a primary affection of the brain centres as there was nothing to show the attacks could have had a reflex origin from nerve irritation. If the attacks were not of vaso-motor origin at all another possible explanation seems to be that after any special exertion the heart, as it were, went on strike and a functional disturbance resulted showing itself in slow and insufficient muscular action. But were the cause of the attacks primary muscular insufficiency with normal blood pressure dilation would probably have occurred. This evidently did not happen, as neither the symptoms nor the physical signs showed that condition.

It is of interest that the attacks should usually be traced

[1] THE LANCET, July 27th, 1907, p. 212.

to some unusual exertion, but they often occurred 24, 36, and 48 hours subsequently. As she recovered, however, the attacks followed more closely after the exertion. This was specially well marked in the last attack which occurred at the end of July, 1907. She had been free from them since June 8th. One night she slept badly, ate very little breakfast, and then went out and pushed her bicycle up a very steep hill. Feeling tired, she went into a cottage to rest and had "an attack." From this it seems possible that the result was due to the exhaustion of some stimulating centre rather than irritation of an inhibitory one. But whatever the cause, the phenomena were those of a slowed, feeble pulse and withdrawal of blood from the surface of the body, so that probably any theory that satisfactorily explains the much-debated question of surgical shock would also apply to this case.

Comparing this case with those described by Sir William Gowers it is interesting to note: 1. Absence of any kind of pain, tetanoid spasm, rigor, tingling, or anything resembling epilepsy. 2. There was no impairment of consciousness. 3. The presence of the sense of impending death. 4. The sudden sense of physical fatigue at onset. Case 2 in his series most closely resembles this patient.

Brixton Hill, S.W.

## A CASE OF CEREBELLAR ABSCESS FOLLOWING MIDDLE-EAR SUPPURATION; OPERATION; DEATH.

BY GEORGE N. BIGGS, M.B., B.S. DURH.,

ASSISTANT SURGEON TO THE EAR, NOSE, AND THROAT DEPARTMENT, SEAMEN'S HOSPITAL ("DREADNOUGHT"), GREENWICH; REGISTRAR TO THE METROPOLITAN EAR, NOSE, AND THROAT HOSPITAL.

ON Sept. 17th a man, aged 35 years, presented himself at the Seamen's Hospital complaining of vertigo of 14 days' duration; at the onset it had been slight but for the last two or three days very severe, and there was a marked tendency to fall to the right side. Slight nystagmus was present, the movements being equal in both directions. The pupils were equal and reacted to light and accommodation, and there was no paralysis of any of the extra-ocular muscles. There was no facial paralysis and the patient had had no attacks of sickness or any headache, neither had there been any earache. There was no weakness of any of the other cranial nerves. The patient had had a discharge from his right ear for at least 20 years. No mastoid swelling or tenderness was present.

On examination of the right ear a large perforation involving almost all the membrana tympani was present and there was also a perforation in Shrapnell's membrane. Granulation tissue and cholesteatoma were present. There was no bulging of the posterior-superior meatal wall. The left ear was normal. The right grasp was found to be much weaker than the left and there was some incoördination on the right side in the rapid rotation of the hand. The knee-jerks were present and equal. The plantar reflex was flexor. The abdominal reflex was weak on the left side. The patient was dull and apathetic and answered with slow intonation but quite intelligently. The temperature was 98° F. and the pulse was 60.

I admitted the patient into the hospital and performed a complete radical mastoid operation. The antrum and middle ear were full of granulation tissue, cholesteatoma, and pus. The remains of the malleus only were found. The external semicircular canal was found to be carious but no fistula could be discovered entering the internal ear through the foramen ovale or foramen rotundum. As the condition of the external semicircular canal would quite have accounted for the vertigo and nystagmus, and as there were no very definite localising symptoms, I decided to wait for a few hours before exploring the brain in case any more localising symptoms might manifest themselves. At 10 P.M. the patient became very much more restless and was unconscious. The temperature was 101·2° and the pulse was 88. As he was obviously worse I decided to explore his cerebellum, as an abscess in that region would, next to the external semicircular canal, be the only likely lesion to account for his symptoms (i.e., vertigo, nystagmus, &c.).

An operation was performed, the patient being placed under chloroform. A curved incision downwards and backwards from the mastoid wound was made, the soft parts were turned down, and the skull was trephined at a point one and a half inches behind and from half to three-quarters of an inch below the external auditory meatus. On removing the bone the dura mater was seen to be very tense and bulged into the trephine opening. A needle with syringe attached was inserted forwards and inwards and pus was withdrawn. The dura mater was then incised and a tube inserted into the abscess with sinus forceps. There was some bleeding of a venous nature from the posterior part of the incision in the dura mater but this was stopped by plugging. The pus was very offensive. The wound was sutured, a dressing was applied, and the patient was sent back to bed. An examination of the patient's discs had shown the veins on both sides to be full, especially on the right side, but there were no signs of optic neuritis.

The patient's condition steadily improved and on the 21st, as there had been no discharge of pus from the abscess for three days, I left out the drainage-tube. His mental condition was quite normal again. On the 22nd he was very well but at 11 P.M. he suddenly vomited and gradually became drowsy and irritable and his pulse fell to 60, his temperature to 97°, and his respirations to 18 per minute. There was no change in the nervous system. On the morning of the 23rd I found that his condition was almost the same as when admitted, the only differences being that his left pupil was more dilated than the right and the reaction to light of the right pupil was rather sluggish. The pulse was 40, the temperature was 97°, and the respirations were 16. The left knee-jerk was perhaps slightly exaggerated.

Dr. R. E. Bickerton very kindly examined the patient's discs and reported that the veins on both sides were full but there were no definite signs of optic neuritis. As there was obviously some increased intracranial pressure, and on account of the condition of the pupils and left knee-jerk, I decided to explore the patient's temporo-sphenoidal lobe first and then again to explore the cerebellum. The patient was anæsthetised and a lumbar puncture was done by Mr. G. Williams. The fluid drawn off was quite clear and escaped gradually, showing no signs of increased pressure. Examination of the fluid revealed nothing abnormal. Sufficient bone was then removed to allow of the temporo-sphenoidal lobe being explored with a syringe in every direction. No pus, however, could be found, but a quantity of blood-stained cerebro-spinal fluid was withdrawn. The cerebellum was also explored with negative results. The wounds were sutured and dressed in the ordinary way. The patient's condition steadily got worse and he died on the 25th at 10 A.M.

A post-mortem examination was made. Unfortunately the patient's relatives refused to allow anything more than an examination of the head. There was no sign of meningitis except a purely local reaction around the tube opening in the cerebellum. No abscess was present in the temporo-sphenoidal lobes and no second abscess was found in the cerebellum. The ventricles were very distended with cerebro-spinal fluid which was quite clear. There was a tube tract going through the cerebellum almost reaching the medulla, although the abscess had been fairly superficial. None of the sinuses were thrombosed.

Presumably death was due to increased tension in the ventricles owing to some obstruction which the limited nature of the post-mortem examination failed to reveal. Repeated lumbar puncture could not have relieved the condition as the fluid that came away was not under increased tension at all.

I deeply regret that the post-mortem examination was of such a limited nature as the case was one of very great interest. My thanks are due to Mr. Williams, the surgical registrar, for the very excellent notes of the case.

Harley-street, W.

CHARING CROSS HOSPITAL MEDICAL SCHOOL.—The distribution of prizes and an address to the students at this hospital will take place in the out-patients' hall at the hospital on Friday, Dec. 18th, at 4 o'clock. Mr. John H. Morgan, consulting surgeon to the hospital, will give the awards and the address.

## A CASE OF LATERAL SINUS THROMBOSIS WITH PYÆMIC PULMONARY AND PERICARDIAL COMPLICATIONS, ETC.; OPERATION; RECOVERY.

BY JOHN MACKIE, L.R.C.P. EDIN.,
AND
H. BELL TAWSE, M.B. ABERD., F.R.C.S. ENG.

NOTWITHSTANDING the almost weekly reports of recovery after lateral sinus thrombosis we consider the following case sufficiently uncommon to be worthy of addition to the list.

The patient, a well nourished boy, aged 15 years, had constant discharge from the left ear for eight years, with attacks of earache when the discharge lessened. The pain abated after poulticing, and free discharge of foul pus relieved the other symptoms. For the past two or three years these attacks were accompanied by mastoid pain, which in recent months was more acute. Lately more severe symptoms had been superadded during an attack and giddiness, distressing tinnitus, sickness and vomiting, with acute general headache, restlessness, and delirium developed, before a copious discharge of pus—a discharge so profuse that seemingly it could not have come from the tympanum alone—relieved his condition. On Sept. 26th, 1906, a more severe attack than usual led his parents to call in Dr. Harvey Francis of Arnold, who recognising the serious nature of the case telephoned for Mr. Mackie. The boy was found to be exceedingly ill with all the symptoms of serious extension of his ear trouble. The left meatus was full of foul granulations, and appliances for the removal of these being at hand it was decided to clear these out and to await developments for a few hours. At this time there were pain and tenderness over the mastoid and the temperature was 104° F., but there was no evidence of a thickened jugular vein and the cervical glands were not enlarged. On the next day there was no improvement. If anything the patient seemed worse. His temperature had ranged from 105° to 97°, accompanied by rigors and sweating, leading to a diagnosis of lateral sinus thrombosis. Immediate operation was decided upon. The mastoid process was exposed by the ordinary incision behind the ear, and on chiselling through the cortex the anatomy was found in rather a confused state. The mastoid antrum was continuous with the cavity of a seemingly chronic extradural abscess, the tegmen antri and tympani being replaced by soft, pulpy, foul-smelling granulation tissue. On removal of this the dura mater was exposed over a large area, and working backwards towards the sinus through dirty washleather-looking material the sinus was reached, the vein wall being unrecognisable as such. The thrombosis was not disintegrated and came away quite easily, free bleeding being established from both ends. No pus was found in the sinus. On commencing the operation the question of tying the vein was left an open one, and at this stage, taking into account the collapsed condition of the patient and the free bleeding from both ends of the sinus, it was decided to leave the vein alone. As the disease had practically performed the radical mastoid operation the wound was partially closed and provision was made for free drainage. For the next two days the patient was naturally in a critical condition. He had daily rigors, followed by rapid rise of temperature. On one occasion the temperature fell from 104° to 96·2° in a few hours. Nevertheless, the patient expressed himself as relieved, took nourishment freely and retained it, and had an average pulse of 80 beats to the minute. On the third day after operation (Sept. 30th) the temperature fell to subnormal and remained there a few hours and the patient seemed to be doing very well, but towards the evening of that day his breathing became laboured and on the next day left basal pneumonia and pericarditis were added to his troubles. Little could now be done but watch the case. The patient was full of pluck and, apparently unaware of his critical condition, was making a good fight. He remained in much the same condition till Oct. 6th—nine days after the operation and five days after pneumonia was recognised—when the temperature, after running up to 106·2°, in three hours dropped to 95°—a fall of 11·2°. There were almost daily rigors but the pulse remained fairly strong. The appetite was good and the patient frequently expressed himself as being "all right." After this, and contrary to all expectations, matters improved and on Oct. 9th the temperature had been normal for 48 hours. On the 10th it suddenly rose to 104·2°, a severe rigor was experienced, and the temperature fell to 99·4°, and soon after about half a pint of thick foul-smelling blood-stained greenish pus was expectorated, evidently from a pulmonary abscess. The patient's general condition remained fairly satisfactory, with occasional rises of temperature to 101° until the 13th, when he complained of sore throat and pain about the angle of the jaw on the left side and along the course of the internal jugular vein. A swelling soon appeared in the neighbourhood of the angle of the jaw and it gradually increased until the 19th, when the neck was laid open from the mastoid tip to the sterno-clavicular articulation. The internal jugular vein, which was small and feebly pulsating, was tied at its junction with the subclavian. The ligature of the vein was temporarily followed by unilateral facial cyanosis which rather alarmed the anæsthetist. A large abscess was evacuated at the upper part of the neck, a drainage-tube was inserted, and a gauze drain was introduced down to the site of ligature. Stitches were put into the rest of the wound and were left untied until four days later. The wound healed by first intention, the abscess cavity gradually filled up and closed, the temperature remained normal, and the patient was discharged on Oct. 31st with a healthy granulating wound over the mastoid. This soon healed up and now he is in excellent health. The cervical scar became painful and markedly keloidal, but the application of x rays has materially reduced the thickening and dispelled the pain.

It seems very probable that in this case there was an extradural abscess of some standing, which had at intervals filled up and discharged through the meatus and that ultimately the sinus wall became involved and a thrombosis resulted. This, perhaps, is not an unusual occurrence, but to have recovery after such complications as pulmonary abscess and pericarditis is certainly very rare.

The case showed a few interesting points, such as the fall of 11·2° of temperature in three hours, the unilateral cyanosis after ligature of the jugular vein, and the remarkable physical and mental stamina of the patient, who never realised the seriousness of his condition. Thickening along the course of the internal jugular vein, reported in most text books as being present in sinus thrombosis, was absent in this case—in fact, neither of us has seen it in previous cases.

Nottingham.

## A SIMPLE METHOD OF OBTAINING A PREPARATION OF LIVING ISOLATED LEUCOCYTES.

BY CONSTANT W. PONDER, M.A., B.C. CANTAB., M.R.C.S. ENG., L.R.C.P. LOND.

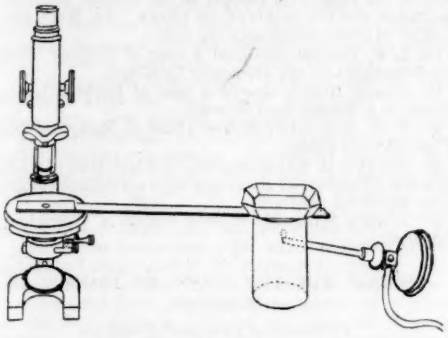
*(From the Cambridge Pathological Laboratories.)*

THE following method of preparing a field of living leucocytes, free from the other elements of the blood, was evolved during the course of a piece of research work, and it seemed to me that it might be useful to those working with leucocytes and could also be used to demonstrate to the student in a striking way the living entity of the white blood cell.

No unusual apparatus is necessary. A warm stage, made by a strip of copper, one end of which is heated, while the other, resting on the microscope, has a hole corresponding to that in the stage; a white porcelain staining dish for washing the slide; and a material which can be obtained anywhere, "plasticine," or modelling clay, which is used to prepare the blood-chamber hereinafter described, are all that is required. An incubator at blood temperature is a useful refinement. A bath of warm, normal, saline solution (0·75 per cent.) at blood temperature is to be prepared in the porcelain dish, and can be kept ready by resting it on the hotter end of the copper strip. A point can easily be found where its temperature will not vary more than a degree or two from 38° C. This simple arrangement is shown in the diagram (Fig. 1).

A blood chamber is prepared as follows. A morsel of plasticine much smaller than a pea is rolled out with a glass slide until it is about one and a half inches long and as thick as the lead of a pencil, and then bent round in a spiral way and fixed in the middle of another clean glass slide, as shown in Fig. 2, forming a chamber A, with an exit E. A fairly

FIG. 1.



A general view of the apparatus.

large drop of fresh blood is obtained and allowed to fall into the chamber at A; a cover-slip is superimposed and pressed down carefully with another slide, so that as the clay flattens blood and air are driven out through the exit E, which must always remain patent, and a thin, even layer of blood fills the chamber and the exit passage; this is shown in Fig. 3.

FIG. 2.

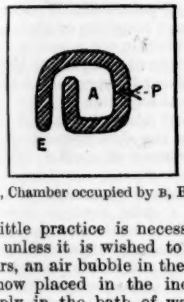
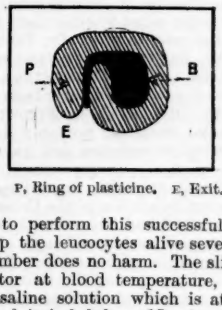



FIG. 3.




A, Chamber occupied by B, Blood. P, Ring of plasticine. E, Exit.

A little practice is necessary to perform this successfully, but unless it is wished to keep the leucocytes alive several hours, an air bubble in the chamber does no harm. The slide is now placed in the incubator at blood temperature, or simply in the bath of warm saline solution which is at a temperature of about 38° C., and it is left here 15 minutes. During this period the blood clots and the leucocytes escape, apparently by their own activity, and passing both upwards and downwards seek the glass surface of the slide and the cover-slip in hundreds, to which they adhere tenaciously. In order to get rid of the clot and serum the cover-slip is carefully removed and both cover-slip and slide are placed in the warm saline bath, which has been prepared ready; the remains of the clot and plasticine are removed with fine forceps or needles and both cover-slip and slide are washed gently by passing them to and fro under the saline solution; this process is continued until the free red corpuscles are all washed away, as seen by the disappearance of the reddish colour. If now the cover-slip or slide be held up to the light an even grey film can be seen with the naked eye, which consists entirely of leucocytes, adhering to the surface of the glass. Two preparations can now be made; one, by placing a clean cover-slip over the film on the slide, moistened with saline solution; the other by placing the cover-slip on which is a film of leucocytes on a clean slide, also allowing a little saline solution to interpose; in the former case the leucocytes are lying on the upper surface of the slide, in the latter case they are hanging from the lower surface of the cover-slip, and indeed a hanging drop preparation can be made from the cover-slip. On examining with a microscope either of these preparations the field is seen to be crowded with active leucocytes of every shape, and the appearance is not masked nor the movements hindered by the presence of red blood cells or fibrin.

If it is desired to bring in contact with these leucocytes any fluid, such as one containing a suspension of bacteria, and watch the result, it can be done by the hanging drop method, or better by placing the cover-slip on which is the film of leucocytes face downwards on a plasticine chamber similar to the one originally described, but which contains a drop of the fluid, such as a suspension of bacteria, and pressing it down to form another chamber in the way described for the original blood. In this way a clear view of what takes place is obtained and evaporation cannot occur to any detrimental degree if the exit is quite narrow. The leucocytes can be watched in conditions more approximating those of their natural habitat if the second chamber is made with a drop of serum obtained by centrifugalising the same blood as that from which they were originally obtained.

By this method living isolated leucocytes can be segregated directly from human blood and kept under observation *in vitro*, without further precautions, for about an hour.

Cambridge.

# Clinical Notes:

## MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

### A CASE OF PURE MYXOMA OF THE LOWER JAW.

BY D. W. DANIELS, M.B., B.S. LOND., M.R.C.S. ENG.,
HOUSE SURGEON TO ST. MARY'S HOSPITAL, PADDINGTON, W.

THE patient, a woman, aged 27 years, first noticed a hard lump in the outer side of the gum of the lower jaw nine months ago. It gave her no pain. The tumour slowly grew and began to get painful. In October last it started to grow more rapidly.

On admission there was a swelling of about the size of a marble opposite the bicuspid teeth of the left lower jaw. The tumour was firm and hard all over. There was no fluctuation. No obvious swelling could be seen on the cheek.

An incision was made over the swelling between the gum and cheek. It was then found that the tumour readily shelled out entire, leaving a cavity in the bone, extending right through to its inner margin.

Microscopical examination showed the tumour to be a pure mxyoma, unmixed with any other tissue, sarcomatous or otherwise.

I have to thank Mr. A. J. Pepper for permission to publish these notes.

St. Mary's Hospital, W.

### RUPTURE OF THE LIGAMENTUM PATELLÆ.

BY DR. PARAVICINI.

SEEING from an annotation in your pages[1] and from a letter which appeared the following week that cases of rupture of the ligamentum patellæ have been seldom recorded, I venture to contribute the following notes. The case offers the special feature that no direct violence to the tendon itself took place, the hyperflexion of the knee and simultaneous contraction of the quadriceps having been the only possible causes.

The accident happened to myself some six years ago in the Swiss mountains. Running down a steep slope covered with a thin layer of snow I slipped and fell, my left gluteal region touching the left heel, my left leg being completely doubled. I felt a cracking and an acute pain and found myself unable to stretch the left leg by its own force. Through my trousers I noticed a gap below the patella which was drawn up by the quadriceps extensor. There was no external wound nor the slightest sign of a contusion. I was alone and only able to crawl slowly. After having called for help during two hours I

[1] THE LANCET, Sept. 12th, p. 825.

was heard, just at nightfall, by a peasant, who brought assistance. Two days later a radiogram made at the Zürich University Clinic confirmed the diagnosis of a rupture of the ligamentum patellæ. Professor Schlatter opened the knee-joint by a vertical incision over the patella and the ligament, removed the accumulated blood clots, and fixed the ligament, which was completely torn through, to the lower border of the patella by strong silk sutures. The leg was immobilised. There were some fever, pain, and an increasing swelling of the joint, symptoms which a puncture proved to be due to a turbid serous exudation, necessitating a second intervention of the surgeon a week after the first operation. After reopening the wound and removing a few stitches, incisions were made on both sides of the joint and the articulation was kept drained for a fortnight. The first incision healed by granulation, leaving a big scar adhering to the patella and the ligament. After several months of massage and exercise I was able to engage in most sports except climbing. Going down steep slopes is still, six years after the accident, very difficult for me. The leg can be bent to an angle of about 30 degrees.

Yokohama.

# Medical Societies.

## ROYAL SOCIETY OF MEDICINE.

### LARYNGOLOGICAL SECTION.

*Exhibition of Cases, Specimens, and Models.*

A MEETING of this section was held on Nov. 6th, Dr. J. DUNDAS GRANT, the President, being in the chair.

The PRESIDENT showed a case of Extrinsic Epithelioma of the Larynx in a woman, aged 28 years.—Sir FELIX SEMON remarked on the extreme rarity of cancer of the larynx in women, and stated that when it was present it was invariably of the extrinsic variety.—Dr. WILLIAM HILL objected to the word "extrinsic" and suggested that the nomenclature of the disease should be revised.—Dr. J. JOBSON HORNE and Dr. R. H. SCANES SPICER took part in the discussion.—The PRESIDENT replied.

The PRESIDENT also showed a case of Thyro-lingual Sinus in a boy.

Sir FELIX SEMON showed (1) a case of Epithelioma of the Left Vocal Cord; and (2) a case of Extensive Epithelioma of the Larynx.—The question of the advisability of operating in the second case was discussed by Dr. STCLAIR THOMSON, Mr. HERBERT TILLEY, and the PRESIDENT.

Mr. TILLEY demonstrated a case of Interarytenoid and Subglottic Infiltration of Fifteen Months' Duration causing Difficulty of Breathing, which necessitated tracheotomy, by means of Brüning's apparatus for direct examination.

Mr. CHARLES A. PARKER showed a case of Malignant Disease of the Right Maxillary Antrum involving the Outer Wall of the Nose and the Cheek in a male aged 68 years.

Dr. P. H. ABERCROMBIE showed a case of Perforation of the Soft Palate following on a severe attack of scarlet fever in childhood.—Sir FELIX SEMON, Dr. PATERSON, Dr. HILL, and Dr. R. E. SCHOLEFIELD discussed the case and agreed that while similar cases were almost invariably due to syphilis, yet scarlet fever, measles, and traumatism might all cause similar conditions.

Dr. STCLAIR THOMSON exhibited a case of Laryngeal Vertigo in Early Tabes.—Sir FELIX SEMON suggested that laryngeal crises would better describe the condition.—Dr. H. LAMBERT LACK, Dr. H. W. FITZGERALD POWELL, Mr. C. A. B. HORSFORD, Mr. PARKER, and the PRESIDENT also discussed the case.

Mr. J. GAY FRENCH showed a case of Extensive Fracture of the Walls of the Frontal Sinuses.

Mr. HAROLD S. BARWELL showed a case of Congenital Occlusion of the Right Posterior Naris.—Dr. J. B. BALL, Dr. P. WATSON WILLIAMS, Dr. SPICER, Dr. MCDOUGALL, Dr. PATERSON, Mr. E. CRESSWELL BABER, and Mr. H. CLAYTON FOX discussed the origin and the best means of operating in such cases.

Dr. HILL showed a case of Epithelioma Primarily in the Posterior Wall of the Pharynx now invading the Œsophagus and Larynx.

Dr. DAN MCKENZIE showed a case of Tuberculous Disease of the Larynx.

Mr. W. STUART-LOW exhibited (1) a case of Recurring Epistaxis, and (2) a Woman with Rhinoscleroma (microscopic slides were shown).

Dr. G. C. CATHCART showed a case of Deflected Septum causing Complete Occlusion of the Right Side of the Nose.

Dr. LAMBERT LACK showed a case of Lupus Erythematosus of the Face, with Patches in the Mucous Membrane of the Palate and the Inside of the Cheek.—Dr. BALL and Mr. T. J. P. HARTIGAN discussed the case.

Dr. L. H. PEGLER exhibited a case of Primary Tuberculous Granuloma of the Triangular Cartilage.

Dr. JOBSON HORNE showed a case of Intrinsic Laryngeal Growth in a Woman aged 64 years.

Mr. E. W. ROUGHTON showed a case of Malignant Disease of the Thyroid Gland.

Mr. ARTHUR H. EVANS showed the Right Half of a Larynx (removed by operation) showing a large carcinomatous growth of the arytenoid cartilage.

Dr. WATSON WILLIAMS showed Models of Operations for Pansinusitis.

### SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

*Exhibition of Cases and Specimens.*

A MEETING of this section was held on Nov. 27th, Dr. EDMUND CAUTLEY being in the chair.

Dr. CECIL E. FINNY described a case of Duodenal Ulcer in a child, aged two months, terminating in perforation, and showed the specimen.—In the discussion Dr. CAUTLEY said that although such ulcers gave rise to pyloric spasm and the pylorus was constricted after death, yet there was no evidence of any distinct hypertrophy of the muscle of the pylorus, and this was in favour of the view that pyloric spasm did not cause hypertrophy. Another striking feature was the absence of definite evidence of pain.—Mr. W. MILNER BURGESS asked whether there was any suspicion of diphtheria in the case, to which Dr. FINNY replied in the negative.

Dr. CAUTLEY showed two specimens of Congenital Morbus Cordis.—Dr. G. CARPENTER also showed a specimen. In his case the child had never been blue at any time.

Mr. DUNCAN C. L. FITZWILLIAMS showed a case of Congenital Scoliosis, probably due to the development of an incomplete vertebra, and gave a *résumé* of similar cases of the kind.

Dr. CARPENTER showed specimens from a case of Congenital Dilatation of the Colon in a child aged six months. The child had been constipated from birth and the colon contained hard fæcal lumps. The specimens showed the great hypertrophy of the wall of the colon and illustrations drawn to scale comparing the microscopical appearances with those of a normal gut were passed round.—Dr. CAUTLEY referred to a case under his own care which died at the age of eight weeks. The abdomen was distended, especially across the upper part. The stools were dark brown and of the consistence of wet sand. There were no scybala. A circular perforation was found eight inches above the anus. He thought that in congenital cases there were not usually fæcal masses but only semi-solid contents. He asked whether Dr. Carpenter had considered the possibility of treating such cases by appendicostomy and careful irrigation to allow the colon to contract.—Dr. F. W. HIGGS mentioned a similar case, now four years old, in which treatment had so far been successful. He thought that the chief danger was the occurrence of stercoral ulcers.—Dr. F. PARKES WEBER remarked that the hyperplasia of the elastic tissue had frequently been found and that it had been suggested that the muscular hypertrophy was compensatory to this. Some of the cases certainly lived for a long time. He thought that the patients were at their best when scybala were present.—Dr. CARPENTER, in reply, stated that having been unsuccessful in treating another case by operation he did not adopt that means for this one. Although the child died he did not think surgical interference would have done any good.

Mr. H. M. RIGBY showed a case of Ectopia Vesicæ in a child, aged 14 months, treated by implantation of the ureters into the rectum. The operation was done extra-peritoneally. The child was now able to control the passage of urine.—Mr. HUGH LETT congratulated Mr. Rigby on the result and referred to a number of cases in which operation had

resulted in no great improvement on the original condition. He related a case in which the ureters had been implanted into the sigmoid flexure, but the latter became kinked with fatal issue. The operation done in Mr. Rigby's case was much simpler than many other operations and the shock was less.

Dr. G. A. SUTHERLAND showed a boy with Enlargement of the Liver and Spleen in which a diagnosis was made of Cirrhosis of the Liver. Mercury had been given.—Dr. CAUTLEY suggested that the rapid way in which it had yielded to mercurials suggested that the cirrhosis might have a syphilitic origin. Another possibility was that the child had some peritonitis, possibly tuberculous. He hoped that Dr. Sutherland would keep the case under observation and report upon it later. True atrophic cirrhosis was rare in children.—Dr. E. I. SPRIGGS said an important point would be as to whether the liver was nodular. He had not been able to feel the nodules himself but Dr. Sutherland had had an opportunity of examining the boy under more favourable conditions. The enlargement of the liver was not great; neither was the spleen larger than was sometimes found in cases of tuberculous peritonitis. He asked whether the temperature had been raised in the course of the illness. He did not think it was a case of Banti's disease as anæmia was not pronounced and the enlargement of the spleen was only moderate—Dr. SUTHERLAND defended the diagnosis of atrophic cirrhosis. He did not think that rapid improvement under mercury in such a case was sufficient evidence of syphilis. He thought it very likely that there was some perihepatitis and that the mercury had benefited that. The onset was sudden, with pain and distension of the abdomen. There had been no pyrexia. A short time ago there had been less fluid in the abdomen than at present and he had been able to feel that the liver was nodular and could feel no tuberculous mass. Although Banti had first shown the connexion between splenic anæmia and hepatic cirrhosis he did not think that this entitled the combination of these conditions to be known by his name. He thought it very unfortunate that the term had come into such common use in this country as a disease.

Mr. SYDNEY STEPHENSON showed a case of Ptosis Adiposa (blepharochalasis) in a child, aged seven years, the condition in which the upper eyelid drops over the eyelash.—Dr. SUTHERLAND passed round a photograph of a similar case which he had shown some years ago at the Society for the Study of Disease in Children. He had recently seen a case in which no benefit had followed an operation, and this patient developed marked spasm of the occipito-frontalis and a corrugated forehead, due to her efforts to raise the upper lid.

Dr. CARPENTER showed three cases of Congenital Deformity, of the skull, of the fingers, and of congenital dislocation of the hip, with specimens.

Mr. HUGH LETT showed a case of Facial Paralysis in a child, aged five weeks.

Dr. CARPENTER showed a case of Pseudohypertrophic Paralysis in a boy.—Dr. SPRIGGS remarked on the great diminution of muscular tissue in both the pseudohypertrophic and atrophic cases of progressive muscular dystrophy. He had found that this was associated with a very great diminution in the kreatinin in the urine and this afforded valuable evidence that kreatinin was mainly derived from muscular tissue.

## EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

*Pityriasis Rubra Pilaris.—Oral Sepsis.—Lantern Demonstration.*

A MEETING of this society was held on Dec. 2nd, Dr. JAMES RITCHIE, the President, being in the chair.

Dr. NORMAN WALKER exhibited a girl, aged 11 years, suffering from Pityriasis Rubra Pilaris as a rare and interesting case. He called attention to its superficial resemblance to psoriasis and to its insidious onset; it had also been confounded with ichthyosis, the skin being specially dry and hard on the knees. It was attended by the development of small papules around the hairs, and these ran together to form large map-like areas—erythrodermic areas. One observer had noted a relation between this disease and tuberculosis, and the patient exhibited was suffering from apical phthisis. The prognosis was not good and the condition as a rule lasted many years. The condition of the legs had improved under the action of weak salicylic vaseline ointment and good food with cod-liver oil and tonics. There was no specific treatment. Doubtless this was the same disease as that which Hebra described as lichen ruber acuminatus, and he affirmed that it invariably ended fatally unless arsenic was administered in large doses. Kaposi also employed this drug hypodermically.

A discussion on Oral Sepsis was opened by Mr. WILLIAM GUY who spoke as follows: It is well to remember that the mouth during extra-uterine life is never sterile. We have always present the bacteria which constitute the indigenous flora of the mouth and are not necessarily pathogenic; we find from time to time pyogenic organisms, staphylococcus pyogenes aureus and albus and streptococcus pyogenes and those which are concerned in the production of caries and of disease of the pulp, the various forms of leptothrix and bacillus gangrenæ pulpæ, and finally those which obtain fortuitous entry, such as pneumococcus, tubercle bacillus, and many other pathogenic organisms. The mouth affords the most favourable conditions not only for the multiplication of fission fungi and the production of their specific toxins but also for the emigration of septic material to other organs and the absorption of toxins. While I am prepared to maintain the thesis that a condition of sepsis in the oral cavity is of itself a sufficient deviation from health to claim the attention of physicians, surgeons, and dentists, I feel that the interest of members will be more concerned with the condition as a certain, probable, or possible factor in the causation of disease or as an intercurrent malign factor in the progress of other diseases. In spite of all that has been said or written, and particularly by Dr. William Hunter, I question if oral sepsis as the cause of septic gastritis is as frequently recognised as it should be. Why for countless ages has the tongue alone been subjected to a careful scrutiny? Why in histories of medical cases is the condition of the mouth ignored or alluded to in vague terms; the importance of observing and reporting on the condition of the mouth *quâ* sepsis should be insisted on. The physician may enlist the services of the dentist in the treatment of his cases, and I wish that the physician would always indicate what he expects the dentist to do and he should explicitly state what he wishes done—as, for example, to put the mouth in a thoroughly healthy condition, remove roots, treat decayed teeth, &c. Such an instruction from the physician would tend to the maintenance of a high scientific standard of professional work amongst dentists, not to mention the satisfaction that they would feel in being asked to coöperate with the physician. On the surgeon I would urge the necessity of attention to the hygiene of the mouth previously to the performance of any operation involving that cavity or any part of the digestive tract. I pause here to invite your views on oral sepsis as one of the principal causes of appendicitis. Rhinologists are, I believe, agreed that in suppuration of the antrum of Highmore the route of infection is much more frequently nasal than dental, but I should like them to consider the possible frequent infection of the nose from the mouth. Aurists must have many opportunities of noting infection of the middle ear from the mouth. In the treatment of pulmonary tuberculosis the condition of the mouth and teeth deserves careful attention. I believe that in the course of all acute diseases, and especially of the exanthemata, the presence or absence of oral sepsis is often the determining factor in the death or recovery of the patient. I should like to hear of some accurate observations being made in this connexion in our fever hospitals, especially in regard to scarlet fever. There is now provision made for medical inspection of school children. Dental caries is the most prevalent of all diseases. What is the good of inspection without treatment, and how is that treatment to be paid for? In the vast majority of school children I believe it is wiser to extract carious milk teeth than to attempt to fill them; better a clean mouth than a dirty one. I even question whether any tooth that has become septic in a child should be retained. In cases of septic adenitis I think the physician should advise the removal of any septic teeth, and I further think that the dentist would be wise to carry out the direction without hesitation or demur. The alienist will tell us, I hope, that the hygiene of the mouth is an essential part of the hygiene of the mind. I recall two cases of empyema of the antrum which produced profound

depression bordering on melancholia. The use of local anæsthetics for tooth extraction has grown very common and is responsible for much post-operative sepsis, gangrene, and necrosis. All must be familiar with cases of neuroses or neuritis due to oral sepsis. I will not enumerate all the remote infections and results of toxæmias due to the same cause, but I trust the discussion will educe many important and interesting clinical experiences.—Dr. G. LOVELL GULLAND thought there was a danger of confusing oral sepsis with the results of bad teeth present. A great many of the evils were due to the latter, e.g., imperfect mastication. The risk of infection of the stomach was much less in healthy conditions when the hydrochloric acid was present in its normal amount, but where there was a deficiency of acid, there was no inhibition to the growth of organisms, and hence gastritis might result. Mouth breathers were specially liable to suffer from oral sepsis. He had no belief in the connexion between oral sepsis and pernicious anæmia; this disease usually commenced after middle life when the mouth was as a rule perfectly clean.—Dr. GEORGE M. ROBERTSON said that he always paid great attention to the condition of the mouth in his cases. There was a lessened resistance to the invasion of organisms in the insane; thus tuberculosis and puerperal fever were more common amongst them. The opsonic index was lower in the insane than in average persons. Lunatics were very susceptible to the toxins which produced cell degeneration as well as nerve fibre degeneration. They were especially susceptible to alcohol which was the touchstone of mental equilibrium. Toxins might pass along the lymphatics of the fifth nerve and so might produce mental disturbance. There was a constant absorption of small amounts of toxins from the mouth and these might exert a most deleterious influence. In dementia præcox the tongue was not much used and oral sepsis was well marked in such cases. He thought that a dentist should always be one of the staff in asylums.—Mr. ALEXANDER MILES alluded to the extreme importance of attention to the teeth in the treatment of syphilis. Affections of the mucous membrane were very severe in bad cases of oral sepsis. He had found that peroxide of hydrogen was the best means of cleansing such mouths. He had noted a marked influence which mercury had in women as contrasted with men, the latter being salivated after from seven to ten days' inunction.—Mr. A. A. SCOT SKIRVING thought the necrosis of the jaw which followed the use of local anæsthetics might be due to want of care in sterilising the syringe and the mucous membrane. He would like to know whether dentists employed strict antiseptic precautions.—Dr. JAMES CARMICHAEL said that he had seen many evils resulting from oral sepsis, and especially in children. The affection of the lymphatic glands was a most important sequela and depended almost entirely on some condition in the mouth or naso-pharynx. He advised a careful examination of the mouth and repeated and periodic visits to the dentist.—Dr. J. S. FOWLER said that chronic cough in children was usually due to pharyngitis and might be relieved by attention to the teeth. In the septic condition of the mouth in infants much harm was often done by attempting to cleanse the mouth and he advised rather attention to sterilising the food.—Dr. NORMAN WALKER asked whether when the medical man found evidence of syphilis in a patient who required dental treatment he should communicate his diagnosis to the dentist.—Dr. BYROM BRAMWELL alluded to the direct communication between the ear and the mouth and to the reflex gastro-intestinal and general disturbances which were set up by decayed teeth. These might be due to absorption of toxins from the teeth and gums or might be due to defective teeth leading to faulty mastication or to the pain from carious teeth. He never could accept Dr. William Hunter's views because in many cases there was no chance of oral sepsis, the teeth having gone. The glossitis which was often present in pernicious anæmia was probably due to the same cause which induced the disease. He had commenced to treat these cases with arsenic so long ago as 1877.—Mr. GEORGE L. CHIENE said that local anæsthetics might contain a fairly large proportion of carbolic acid and this, when injected into a very dense tissue, was likely to induce sloughing.—Mr. J. S. FRASER said that in an examination of over 2000 mouths it was very rare to find a perfect set of teeth. He had noted that the mucous membrane under dentures was often very much inflamed and in conditions of oral sepsis he had seen the mucous membrane of the throat and pharynx congested and acute tonsillitis and peritonsillar abscesses were frequent.—The PRESIDENT said that the toilet of the mouth was of the greatest importance, especially in children. He preferred a solution of chlorate of potassium to carbolic lotions as a mouth purifier. He had treated an elderly lady for melancholia; when three teeth which were suppurating at the roots were removed she recovered her mental health. The sepsis had affected her nervous system.—In reply, Mr. GUY said that it would be wise for the dentist to meet the medical man in consultation in such cases as Dr. Norman Walker had referred to. Quite apart from oral sepsis, a large number of teeth might be functionless and so gastric disturbances might arise from faulty mastication. Out of 10 or 12 cases of pernicious anæmia which he had examined only one had a septic condition of the mouth. Of all parts of the body he thought that the alveolar ridges were the least suitable for the injection of local anæsthetics on account of their denseness. The character of the anæsthesia was here largely due to pressure and this must of necessity in a large number of cases be followed by necrosis. He thought that it was better to extract than to stop the teeth in children of the masses. He recommended for cleaning the teeth chalk used in considerable quantity, much more than was usually employed, together with a little clove oil and saccharin which was an excellent antiseptic. After extraction an antiseptic lotion (as carbolic acid and carbonate of soda) should invariably be used. Women's mouths were as a rule much dirtier than those of men.

Dr. BYROM BRAMWELL gave a Lantern Demonstration of a series of cases of unusual interest: 1. Typical Lymphatic Leukæmia developing at the remarkable age of 77 years. 2. Hæmorrhage extending from the top of the Pons Varolii to the bottom of the Medulla Oblongata; death a month after the occurrence of the first symptoms; patient not unconscious until just before death. 3. Acute Encephalitis involving the brain and pons Varolii; numerous micro-organisms in the affected tissues. 4. Aneurysm of Basilar Artery; rupture 90 hours before death; (?) previous rupture seven weeks before death; mitral stenosis. 5. Typical Pseudo-hypertrophic Paralysis with most remarkable changes (apparently artefacts) in the spinal cord. 6. Tumour of the Pituitary Body and Infundibulum with most marked Diabetes Insipidus; paralysis of both third nerves, &c.; other tumours in the groin, thyroid, pancreas, and kidney.

## ROYAL ACADEMY OF MEDICINE IN IRELAND.

### SECTION OF PATHOLOGY.

*Exhibition of Specimens.*

A MEETING of this section was held on Nov. 20th, Dr. A. R. PARSONS, the President, being in the chair.

Sir JOHN W. MOORE exhibited specimens of a Double Mitral Lesion. A girl, aged 14 years, was admitted to the Meath Hospital on August 11th, 1908. She died on Sept. 14th. She had been seriously ill for five weeks before her admission, complaining of pain about her heart and of short breath. Her weight was 6 stones and ½ pound. Physical examination showed that she was suffering from the effects of rheumatic endocarditis, unmistakeable evidence that compensation had failed being present. As to the heart itself, a double murmur was audible at and near the seat of impulse, a presystolic murmur with slight valvular thrill indicating mitral obstruction, while a systolic murmur heard over an extensive area from the apex beat to the left side and back indicated mitral leakage. The latter murmur was conducted upwards towards the aortic area, where it was faintly heard, but it quite failed to reach the carotids by convection. There was, therefore, no clinical evidence of any lesion of the aortic valves. The patient made satisfactory progress through rest in bed and on three-grain doses of citrate of iron and quinine, and compensation seemed to be almost restored, when on Sept. 11th she suddenly became unconscious and vomited freely. She soon recovered consciousness in part, that is in two hours from the seizure, but vomiting recurred at intervals during the day. When she

became able to express herself she complained of great pain in her left side, but no pleural rub could be felt or heard over the left base. The left eye became acutely inflamed and presented the features of an embolic and septic panophthalmitis. On the evening of the attack the axillary temperature rose to 101·2° F., the pulse to 126, and the respirations to 54 per minute. On the next day the thermometer did not rise above 97·4°; but in the death agony on the morning of Sept. 14th, about 70 hours from the seizure, 102·6° was recorded, the pulse being 148 and the respirations 52. She died at 5 P.M. on the 14th. A necropsy was made by Dr. W. Boxwell, the assistant pathologist to the hospital. He reports as follows: "On opening the pericardium a small amount of sero-fibrinous fluid was found within it. The heart itself was about normal in size and weighed 11 ounces. The visceral pericardium shows some subacute pericarditis, especially over the left auricle. On opening the chambers of the heart and washing out the clots the first thing noticed was an extensive acute vegetative endocarditis spreading over the wall of the auricle and continuous with a similar condition of the parietal cusp of the mitral valve. The wall of the auricle is considerably thickened over a circular area the size of a shilling and covered with vegetations. The auricular ventricular orifice is obstructed by shaggy vegetations growing from both cusps, especially the septal cusp. This cusp is also somewhat rigid and distorted. The orifice itself is, however, not stenosed, and admits two fingers freely. There is considerable thickness of the chordæ tendineæ, pointing to a previous chronic inflammation. The changes found in the spleen are also of some interest. It is enlarged and full of infarcts, some old standing, others more recent. One of them —a large reddish one—was suppurating, and an abscess, containing about an ounce of thick pus, was formed between the spleen, the overhanging and adherent liver, and a peritoneal fold. There was no generalised peritonitis. Some small infarcts in the kidneys, one of them recent and hæmorrhagic, were also noticed. There was nothing of interest in the lungs or other organs examined." The case illustrates the distinction which may be drawn between mitral narrowing, or stenosis, properly so-called, and mitral obstruction due to vegetations in and about what is really a dilated mitral orifice. It also affords a striking example of infarction and of septic embolism of the spleen.

Mr. L. G. GUNN exhibited an Unusual Thyroid Tumour which presented a perfectly smooth surface outside. On cutting into it it had the appearance of tuberculous affection, but the main thing that struck one was that quite large areas of calcification had taken place in the gland itself. About two months had elapsed and the patient showed no signs of myxœdema occurring. In some cases the entire thyroid had been removed without its occurrence. The sections under the microscope gave the impression that a carcinomatous change had taken place in the gland.—Sir CHRISTOPHER J. NIXON thought it was recognised not to be a justifiable procedure to remove the thyroid as a whole from the inevitable recurrence of myxœdema, as pointed out by the experiments of Horsley on monkeys. In Mr. Gunn's case there might be an accessory gland, which would prevent the myxœdema occurring.—Professor J. A. SCOTT said that one section appeared to be normal, but the other had a patch which might be anything. The gland was certainly not normal.—Professor A. H. WHITE said that the second section looked somewhat suspicious, but he would not like to say definitely that it was malignant.—Mr. GUNN, in reply, said that he did not think it necessarily followed that the entire removal of the gland would be followed by disastrous results. He did not think—in reply to a question by Dr. H. C. EARL—that the areas of calcification were true bone.

Dr. R. J. ROWLETTE and Mr. GUNN exhibited specimens of Sarcoma of the Intestine.

Dr. BOXWELL exhibited a specimen showing an Abscess in the Left Temporo-sphenoidal Lobe. The patient from whom the specimen was taken was a man who was admitted to Meath Hospital under the care of Mr. W. Taylor on Nov. 5th last. The history of the patient, obtained subsequently, was that he had suffered from a double suppurative otitis media from the age of seven and had continued to suffer for eight or nine years. The discharge then ceased, first on one side and then on the other, and he remained free from any sign of ear trouble until seven or eight months ago, when, without any cause so far as he knew, both ears began to discharge again. He was admitted to Meath Hospital from Cork-street Fever Hospital, where he had been undergoing treatment for typhoid fever. During convalescence he complained of headache for two or three days and then vomited almost incessantly for a day and a half. The character of the vomiting was cerebral. The discharge still continued. The optic discs were examined, but no evidence of "choked disc" could be detected. A few days previously to his admission to Meath Hospital, Dr. Davies, assistant to Dr. J. M. Day, had noticed some defect of memory, which was, however, only transitory. The patient had forgotten where he lived and what brought him to the hospital. The eyes were again examined but nothing abnormal could be seen. The pulse varied from 76 to 86 to the minute. The tension was normal and the temperature was 98° F. When first seen at the Meath Hospital the above history was not available, but the discharge from *both* ears was evident. The patient's intellect seemed quite clear. He answered correctly but with the faintest possible suspicion of hesitation or slowness. There was no complaint whatever of headache, even on inquiry. He denied having vomited and said that any headache he had previously suffered from was trifling. The pupils on both sides were quite normal and reacted readily to light. The reflexes in both arms and legs seemed to be normal. There was no impairment of movement of the eyeballs. No tenderness was felt on firm pressure anywhere over the head and no pain or tenderness was complained of on percussion over either side of the head. The temperature was 97·8°, the pulse was 80, and the tension was normal. Hearing that both optic discs were that morning found to be normal no further ophthalmoscopic examination was made. The condition remained unchanged for the next two days. It was at 9.30 P.M. on the 7th that the clear history of loss of memory and vomiting was first obtained from Cork-street Fever Hospital, and so it was determined that if the patient's condition was no better on the next morning an operation should be performed. At 2 A.M. on the 8th he became comatose and in this condition he was found by Mr. Taylor at 10 A.M. The pulse was 76 and the respirations were quiet. Touching his head anywhere caused the patient to move the right leg and right arm. There was no attempt at all to move either of the left limbs. The head was also turned to the left side on touching the left side of it. Trephining over the left temporo-sphenoidal lobe was at once proceeded with. This site was selected on account of the history of loss of memory noticed earlier in the case and of the slight difficulty which it was thought the patient exhibited in pronouncing his words on the evening on which he was admitted. A large abscess was readily found and drainage was provided. The pulse at once ran up to 140. The temperature one and a half hours after the operation was 101° but the patient remained comatose with widely dilated pupils. At 6 P.M. his temperature was 105° and the pulse-rate ranged from 130 to 140. On the next morning his condition was just the same and he died comatose 24 hours after operation. The necropsy revealed a temporo-sphenoidal abscess.

---

SHEFFIELD MEDICO-CHIRURGICAL SOCIETY.—Meetings of this society were held on Oct. 22nd and Nov. 19th, Mr. P. E. Barber, the President, being in the chair.—Dr. Herbert G. M. Henry read a paper on Lumbar Puncture, its Diagnostic and Therapeutic Possibilities. He said that the lumbar puncture was first practised in England by Dr. W. Essex Wynter in 1889. Since that time the procedure had fully established its position in the armamentarium of the modern clinician. It was an operation entirely devoid of risk if aseptic precautions were adopted, and not only afforded valuable data in the diagnosis of many diseases but had also in certain cases a very decided therapeutic value. The pressure of the cerebro-spinal fluid varied greatly in normal conditions. In healthy persons in the horizontal position it averaged 125 millimetres water pressure, but in the sitting posture this might increase to more than 400 millimetres. Moreover, in pathological conditions it was sometimes impossible to determine how far a reading gave an index of the pressure of the fluid as a whole or only of a part shut off from the rest by adhesions. Normal fluid contained globulin and the presence in it of albumin was evidence of

organic disease. The same might be said, too, of choline, but the tests for choline were difficult to carry out clinically. The absence of dextrose which occurred in normal cerebro-spinal fluid was characteristic of many cases of meningitis. In tuberculous meningitis a lymphocytosis was found, as also in tabes, in general paralysis, and in cerebro-spinal syphilis. Polymorphonuclear leucocytosis indicated an acute inflammatory condition of the meninges. It was possible, by means of lumbar puncture, to classify the various forms of meningitis and to diagnose anomalous forms. The operation helped also to differentiate meningitis from cases of so-called meningism and from uræmia. In a few cases it was possible to diagnose cerebral hæmorrhage from thrombosis or embolism. In no case of cerebral tumour had it helped in diagnosing the actual nature of the lesion, although a few cases were recorded where valuable information had been obtained. As a therapeutic agent lumbar puncture deserved more credit than it received. It did temporary good in probably all cases of meningitis and in some effected a permanent cure. It was a very valuable procedure in cases of increased intracranial pressure. Three cases were cited—cerebral tumour, subacute nephritis, and fractured base of the skull—in which it had led to recovery from coma which would otherwise apparently have proved fatal.—Dr. Thos. Robertson showed: 1. A case of Banti's Disease in a boy. There was a history of anæmia and hæmorrhages. At present there are a slightly enlarged spleen, enlarged liver, persistent jaundice, leukopænia, and anæmia of the chlorotic type. There had been great improvement under arsenic. 2. A case of Paramyoclonus Multiplex in a boy; this was the third case in the same family.—Dr. Arthur J. Hall read a paper on Diabetes Mellitus. He called attention as to whether this disease was increasing or not. In order to clear up this point he had obtained statistics of the Registrar-General for England and Wales and also those of the city of Sheffield. From these it was seen that during the two decades 1887–96 and 1897–1906 the number of deaths from diabetes per 1,000,000 of the inhabitants living had increased from an average of 64 during the first decade to 88 during the second in England and Wales, whilst in Sheffield the increase during the same two periods was from 42 to 66. A further inquiry into the possible explanation of this great increase showed that it had occurred practically in the two sexes, but that the increase was much greater in those whose age at death was above 45 years than in those whose age at death was below. The most marked increase is in those dying between 55 and 75 years of age. From these results it seems probable that whilst there appears to be a slight increase in the number of cases of acute diabetes affecting younger or middle-aged adults, the great increase seen from the Registrar-General's reports is chiefly due to an increased number of cases of diabetes occurring in older people or at least not causing premature death. The subject of treatment of diabetes was then alluded to, particularly the question as to the value of opium or its alkaloids and secretin. Tables showing a series of clinical observations on the effect of opium in numerous cases were exhibited and from these various points were illustrated. In conclusion Dr. Hall pointed out that whilst as regards therapeutics of diabetes the profession stands much where it did nearly a century ago, yet the advance in our knowledge of the pathology of the disease has been considerable and the prospect of future clinical application of that knowledge is not without hope.

ÆSCULAPIAN SOCIETY.—A meeting of this society was held on Dec. 4th, Dr. Alexander Morison, the President, being in the chair.—Dr. T. G. Stevens read a paper on the Diagnostic Value of Pain in Gynæcology. He said: Pain is a well-marked symptom in diseases of women but it is often difficult to localise so as to be helpful in diagnosis, so that we often have to neglect pain distribution and rely on physical signs for diagnosis. Visceral pain in general is either (1) deep-seated peritoneal pain, always associated with inflammatory diseases and with malignant growths, is more or less generalised, and elicited by deep pressure; or (2) reflected pain—a skin sensation. The skin can be mapped out into areas corresponding to certain segments in the cord and these areas represent pain corresponding with certain visceral lesions. Inflammatory diseases of the ovaries always give hypersensitiveness to pain in the area supplied by the tenth dorsal nerve; the uterine cervix and lower part of the body correspond to the tenth, eleventh, and twelfth dorsals, and the second, third, and fourth sacrals are particularly connected with the body of the uterus. In connexion with pain in general they must not forget neurasthenia, which is a general lowering of the central nervous system in its powers of bearing and localising pain. Acute pain coming on quite suddenly points to threatened abortion, ruptured tubal gestation, ruptured ovarian cyst, or torsion of the pedicle of an ovarian cyst. Acute pain with a gradual onset is seen in inflammatory diseases developing slowly, such as pelvic peritonitis, gonorrhœa as it spreads to the vulva, infection of Bartholin's gland, and retroverted gravid uterus. Periodic menstrual pain may be premenstrual, coming on two, three, or seven days before the flow and due to congestive dysmenorrhœa. If the pain is with the flow—spasmodic dysmenorrhœa—it is associated with imperf ct development of the uterine muscle. Periodic pain may occur without menstruation due to the uterus being undeveloped or to retained menses. Again, periodic pain may be intermenstrual, occurring regularly between each menstrual period, the so-called "middle pain"—the Mittelschmerz, so fully described by the Germans but first described by Sir William Priestley. Chronic pain in the back is nearly always associated with common diseases of women, such as endometritis, retroversion of the uterus, prolapse, impacted fibroid in the uterus, &c. Chronic pain is mostly lateral and, as pointed out by Herman, oftener on the left side. Pain in cancer of the cervix is generally a late symptom and it is quite common to see patients with inoperable cancer with little or no pain. Simple ovarian cysts usually give rise to no pain, but malignant ovarian growths nearly always give rise to pain due to implication of the peritoneum. In uterine fibroids, especially small ones, pain as a rule is absent, but pain may be marked if the fibroid gets impacted in the pelvis or compresses the neck of the bladder or rectum. In tubal gestation pain often is a premonitory symptom of rupture. Pain of an intermittent character, deep-seated in the pelvis, in a woman who has missed a period is very suggestive of a tubal gestation, due to the distension of the tube from hæmorrhage around the embryo.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Nov. 20th, Dr. Robert Jardine, Vice-President, being in the chair.—Mr. Cuthbert S. Wallace delivered an address on Some Problems connected with Diseases of the Prostate. The internal sphincter was, he said, the true bladder sphincter. By means of lantern slides he pointed out that in advanced cases of prostatic enlargement an explanation of the symptoms was easy, but that in early stages there was little physical alteration to account for symptoms. He considered that, in this country at least, chronic prostatitis was rare and that most of the symptoms were those that belonged to sexual neurasthenia. The appearances of chronic inflammation were wanting in the specimens which he had examined. The best case of prostatic enlargement for operation was that with large resistant prostate with well-marked symptoms. The suprapubic route was best. The small hard prostate was best left alone if the symptoms were not marked and if attacked the low route was best. The signs of carcinoma were a small hard prostate unilobular bulging of the rectum, a plaque-like extension into the intervesicular area or into the base of the bladder, and a thickened condition of the urethra. Hæmorrhage was not common; pain might be extreme. Other symptoms were the same as in simple enlargement, except that the duration of illness was usually less. He referred to the possibility of diagnosing the condition while the cancer was still confined to the gland. Regarding the possibility of diagnosing carcinoma while still confined to the gland, it was pointed out that the most remarkable symptom—viz., the upward extension on to the bladder base—was no good, as when such had occurred it was obvious that the growth was already outside the gland. Also there was no doubt that metastasis occurred in distant parts, though there was little local infection. The neighbouring glands might escape while the pleura was infected. He referred to cases illustrating the fact that a patient might live in fair comfort for three years after the microscopic diagnosis of cancer. Even piecemeal removal of the gland behind the urethra was successful in relieving symptoms, though useless from a curative point of view. The operation of real, total prostatectomy would take its place in the future, though the mortality was bad at present. It was

worth doing even if the continuity of the bladder and urethra could not be re-established. The advantages of prostatectomy done in two stages were emphasised where the symptoms were acute or the patient was suffering from sepsis.

NOTTINGHAM MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Dec. 2nd, Dr. P. Boobbyer, the President, being in the chair.—Dr. C. Bell Taylor read a short paper on Cataract Extraction, in which he argued that iridectomy was better avoided, for it did not prevent prolapse of the iris and had other disadvantages. In some cases operation might wisely be postponed for a few years. For the actual extraction he used the spear-shaped pique de Pamard as causing less injury than fixation forceps and made the section of the cornea with a special trowel-shaped knife. The flap when completed included one half the cornea. Some patients operated on by Dr. Taylor were also shown.—Dr. C. H. Cattle read some notes on a case of Aortic Aneurysm, which caused the sudden death of a man aged 51 years. The signs, generally speaking, were latent in this case, for the cough and shortness of breath were much relieved by a few weeks' indoor treatment in hospital, hoarseness and complete paralysis of the left vocal cord alone remaining. Just as his discharge was contemplated a copious hæmoptysis occurred with fatal result. The specimen exhibited showed a small aneurysm of the descending portion of the arch which had ruptured into the left bronchus.—The President, Dr. F. H. Jacob, and Mr. H. B. Tawse discussed the case, and Dr. Cattle replied.—Mr. A. R. Tweedie read a short paper on the Middle Turbinal Body in Health and Disease in which he pointed out that the anterior end of the middle turbinal formed a protection to the openings of the frontal, ethmoidal, and maxillary sinuses respectively, as well as to the sensitive septum. He was strongly of opinion that total removal of the middle turbinal was better avoided. As the tissue covering the bone was a muco-periosteum lesions of the mucous portion were reflected more deeply as osteitis and this again tended to maintain œdema and hypertrophy of the mucous tissue overlying the bone and a thoroughly vicious circle was thus established. After tracing some of the secondary results of abnormal conditions of the middle turbinals Mr. Tweedie emphasised the benefit derived from removal of the anterior ends of the middle turbinals in certain cases. Cauterisation should, however, be avoided and operation should be strictly limited to what was really necessary.—Mr. Tawse had seen complete removal of the middle turbinals practised in a large number of cases without any apparent ill effects on the throat in consequence.—The President and Dr. J. Watson and Mr. J. H. Cox asked whether irrigation of the nasal passages was still considered advantageous, and Mr. Tweedie replied that it had been practically given up as useless, if not detrimental.

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Nov. 27th, Dr. W. H. Cheetham being in the chair.—Dr. T. Wardrop Griffith read a paper on Some Forms of Cardiac Irregularity, with Observations on a case of Heart-block. The paper was illustrated by lantern slides.—Mr. J. F. Dobson read a paper on the Treatment of Acute Intestinal Obstruction by Intubation of the Intestine. The paper was illustrated by a number of cases upon which the operation had been performed.—Mr. G. Constable Hayes and Mr. G. P. Humphery showed a case in which a bullet had been removed from the nasal cavity after causing Detachment of the Retina; it was localised by x rays.—Mr. B. G. A. Moynihan showed a series of specimens from cases of Partial Gastrectomy. In many the change from a chronic ulcer to carcinoma was shown; the pathological changes, that is to say, corresponded with the clinical history. The after-results were referred to; one patient was alive over five years after operation and another over three years after. Colour photographs were also shown.—Mr. H. Littlewood showed a specimen from a case of Primary Ovarian Gestation.—Dr. A. G. Barrs showed a case of Multiple Peripheral Neuritis due to "diachylon" poisoning.—Mr. A. L. Whitehead showed a case of Chronic Empyema of the Antrum of Highmore in which the opacity of the antrum to transillumination persisted after the evacuation of the pus.—Mr. W. Thompson showed (1) a specimen of Malignant Tumour excised from the Kidney, and (2) a Blood-cast of the Ureter, 14 inches in length, many of which were passed by the patient from whom the specimen was removed.—Mr. R. Lawford Knaggs and Dr. W. H. Maxwell Telling showed a Tuberculous Kidney excised. During life there were no urinary signs but severe pain in the region of the affected kidney. A skiagram showed the kidney opaque to the x rays, suggesting the presence of numerous calculi. The diseased organ was entirely filled with caseous material, containing a large amount of gritty material.—Cases and specimens were also shown by Mr. E. H. Hackett, Dr. J. B. Hellier, Mr. A. S. F. Grünbaum, Mr. H. Secker Walker, Dr. E. F. Trevelyan, and Dr. A. D. Sharp.

HARVEIAN SOCIETY OF LONDON.—A meeting of this society was held on Nov. 26th, Mr. D'Arcy Power, the President, being in the chair.—Mr. Edred M. Corner read a paper entitled "The Indications of Suppuration in Appendicitis." It was first demonstrated on physiological and anatomical grounds that the cæcum and appendix were the part of the alimentary canal where bacteria were placed under the most favourable conditions for growth, and hence inflammatory affections in this region were more likely to be followed by suppuration than in other parts of the gastro-intestinal tract. Mr. Corner insisted on the importance of remembering that in cases of appendicitis where there had been fever for four or five days suppuration was probably present. He also laid great stress on the fact that an abscess was usually present when a lump was felt by abdominal palpation over the appendix region in a case of appendicitis. He pointed out that cases of appendicitis which were of a severe type and were not operated upon often resulted in the formation of a local abscess. This abscess if it did not burst into the general peritoneal cavity and set up general peritonitis frequently would discharge itself into the bowel, usually into the small intestine. In conclusion he discussed the advisability of removing the appendix in cases of appendicitis which were operated upon for appendix abscess.—Mr. M. Fitzmaurice-Kelly read a paper on the Treatment of Urethral Stricture. The pathological changes in the mucous membrane and submucous tissue were discussed and illustrated by microscopical preparations, and the fact was emphasised that the essential changes occur in the submucous tissue, the mucous membrane being thickened and the epithelium approximating to the stratified squamous type. As regarded treatment Mr. Fitzmaurice-Kelly thought that intermittent dilatation was the method of choice in uncomplicated cases, and condemned rapid dilatation under an anæsthetic as dangerous and likely to be followed by a rapid recurrence of symptoms. The indications for urethrotomy were then discussed and preference was given to internal urethrotomy when possible, the roof of the canal being divided from before backwards, the operation of external urethrotomy being reserved for emergencies and certain circumstances that made internal urethrotomy impossible or inappropriate.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Dec. 4th, Colonel T. H. Hendley, I.M.S., the President, being in the chair.—Dr. S. D. Clippingdale read a paper upon West London Rivers, Extant and Extinct, and their Influence upon the Fertility and Salubrity of the Districts through which they Pass or Passed. Dealing with 14 streams, some of which no longer exist as open rivers but are converted into closed drains, Dr. Clippingdale showed their influence in producing the great fertility of Middlesex soil, the cultivation of which the Britons had been taught by their Saxon invaders. As a result the health of the district was benefited to a great extent by the abundant supply of root crops, fruit, and cereals. Scurvy, which formerly was prevalent in the metropolis, disappeared with the introduction of the potato into the market-gardens of Chiswick. On the other hand, these open streams in times of flood or of drought had fostered miasmatic diseases and the disease known as "London ague," formerly very prevalent, had disappeared with the closing in of such rivers as the Fleet, the Tyburn, and the Serpentine. By their influence on the land surface these rivers had also produced a series of clay hills and gravel valleys, experience and also statistics tending to show that it was better to live on a clay hill than in a gravel valley.—Mr. H. H. Miles, Mr. W. McAdam Eccles, and the President discussed the paper.

# Reviews and Notices of Books.

*The Origin of Vertebrates.* By W. H. GASKELL, M.D. Cantab., F.R.S. London: Longmans, Green, and Co. 1908. Pp. 537. Price 21*s.* net.

FOR 20 years the papers from which this book has been compiled have been published at short intervals, and to their author it is a subject of wonder and regret that they have not been criticised as are other papers of a like calibre. That they have not been so criticised does not imply want of notice, for probably few scientific papers have been more extensively or fully read, but it does seem to imply that the leaders of morphological thought have realised that they must adopt one of two courses: (1) allow the essential truth of the theory and at the same time admit that the foundations of embryology as at present taught are unsatisfactory; or (2) ignore the wonderful sequence of morphological researches and deductions because they do not fit in with our present conception of embryology.

It is quite childish to pretend that the importance of the subject does not justify the trouble necessary to expose any fundamental error there may be in the chain of constructive argument and probably the inadequate notice which Dr. Gaskell's papers have received is the greatest tribute that could be paid to him. In trying to be altogether just we must recognise the possibility that critics were waiting until the work was presented as a whole before crushing it or admitting its substantial validity, though against this it has to be realised that there is no living morphologist who has devoted 20 years to the study of the origin of vertebrates or who could fairly criticise the subject from every point of view. To those who have not read the original papers, most of which appeared in the *Journal of Anatomy and Physiology*, we suggest that after reading the introduction they begin the book with Chapter XIV. on page 455. This is on the principles of embryology and if, after reading it, they are convinced that the epiblast and hypoblast could not change places with one another as the theory demands they need go no farther. If, however, any suspicion of the sanctity of the three germinal layers arises the constructive part of the book should be read with the care which it undoubtedly deserves.

The author's object is to show good reasons for deriving the vertebrates directly from the arthropods, and that the central canal of their brain and spinal cord is the arthropod's alimentary canal; that the infundibulum, leading to the pituitary body and pharynx of the vertebrate embryo, is the mouth of the arthropod, while the neurenteric canal represents the more primitive anus. Incidentally the various parts of the invertebrate brain fall into their places, the supra-œsophageal ganglia become the fore brain, the supra-œsophageal commissure the anterior commissure of vertebrates, the infra-œsophageal ganglia become the hind brain, while the parœsophageal connectives are the crura cerebri. So, too, the cephalic stomach of the arthropod becomes the ventricles of the brain, while the fore brain retains its original communication with the olfactory and optic nerves and the hind brain with the nerves concerned in mastication and respiration.

The nearest living arthropod to the vertebrate progenitor Dr. Gaskell regards as the king crab (Limulus), a close ally to the trilobites which were so plentiful in Silurian times. The trilobites, sea scorpions, and king crabs are included in the group Palæostraca from which the Crustacea, Arachnida, and Vertebrata were gradually evolved. The earliest vertebrates known are fish without jaws, in this resembling the lamprey, and they first appear in Silurian times. Dr. Gaskell insists that their nearest living representative is not the amphioxus of our orthodox text-books, but ammocœtes, the larval lamprey. Very interesting to the anatomist are the chapters devoted to the evolution of the pineal body, the thyroid body, the notochord and ductless glands; but the author is in harmony with most modern thought in insisting on the importance of the nervous system as the master organ the development of which determines the winners in the struggle for existence.

Whatever the line of descent of the vertebrates may be there can be no doubt as to the wonderful deductive powers of the author or the patience and skill of his 20 years' research. What the plain man will ask is, "How much is he keeping back?" and "Is he, like some brilliant theorists, using only the facts which support his case?" As to this we, like the author, must await the verdict of the experts. If they know anything beyond the embryological difficulty which makes his case impossible it can still be said, though the wonder is that knowing it they have not said it already.

---

*Military Hygiene: a Manual of Sanitation for Soldiers.* By Lieutenant-Colonel R. H. FIRTH, R.A.M.C. London: J. and A. Churchill. 1908. Pp. 299. Price 3*s.* 6*d.* net.

THIS comprehensive little work has been presented by the author in order to explain the bearing of the principles necessary for the preservation of health. It is especially valuable as, according to the provisions of Army Order 3 of 1908, sanitation is a compulsory subject of examination for promotion to the rank of Captain. The importance of sanitation is at length becoming fully recognised in our army, for it is now manifest how disease will produce absence from the effective ranks, and thus the prevention of disease is synonymous with military efficiency. We entertain our recruits after an examination as to their personal fitness; the aim henceforth should be to retain them, so far as medical science can retain them, in this state of personal fitness. Those in authority must know for this purpose how soldiers should be housed, fed, clothed, and equipped. These details this work undertakes to teach to those concerned, and admirably has it effected its object.

The author commences his subject by a consideration of military morbidity and mortality as influenced by locality, age, and length of service; he shows *inter alia* that the loss due to discharge as invalids is not materially increased by foreign service, although the death-rate is distinctly raised thereby. *En passant*, we see that that class of disease—the venereal—which is so important in the army, is present in its highest ratio in the American army, the British army coming next, whilst the Germans enjoy the greatest freedom from it. The causes of disease are considered, after which Lieutenant-Colonel Firth enters on the subject of the chief preventable diseases of soldiers, including venereal diseases, malaria, dysentery, infectious diarrhœa, cholera, typhus fever, enteric fever, plague, Malta fever, yellow fever, scurvy, and cardiac affections. The principles of the prevention of disease are detailed and here we see the good effects of inoculation against enteric fever admirably portrayed. The agencies by which organised sanitary effort is carried out are then dealt with. Next we come to the points to be considered in enlisting recruits, followed by a chapter on their physical training.

One of the best chapters in the book now follows—viz., that on barracks. This includes matters relating to the site, the disposition of the buildings on the site, the planning of the barrack-rooms, the ablution rooms, the method by which cleansing should be carried out, questions concerning the storage of food, the washing-up of plates and dishes, the latrine accommodation, and especially the consideration of tropical barracks. It closes with

remarks on huts and married quarters. This chapter, indeed, omits nothing of importance. The author enters on the subject of water-supplies, the amount, sources, the comparative qualities of water-supplies, storage and delivery, impurities and the effect of drinking impure water, and the means whereby water may be purified and rendered fit for consumption. The principles of diet now engage our attention before the ration of the soldier is considered; the latter is detailed with respect to its issue in times of peace in hot countries and in war. The cooking of the food, the diseases connected with food, and remarks on the various articles of food complete this section. The subject of alcohol is concisely entered upon. The methods of clothing the soldier, his equipment, and his work, and the questions relating to marching and the camp complete the work.

From the above remarks it will be seen how admirably Lieutenant-Colonel Firth has fulfilled the task which he has undertaken. We doubt not that this book will be in the hands of all concerned, for hitherto no such valuable compendium of all that relates to our army has appeared.

---

*A Manual of Bacteriology.* By HERBERT U. WILLIAMS, M.D., Professor of Pathology and Bacteriology, Medical Department, University of Buffalo. Revised by B. MEADE BOLTON, M.D., Professor of Pathology and Bacteriology, University of Missouri; Bacteriologist, Bureau of Animal Industry, &c. With 113 illustrations. Fifth edition, revised and enlarged. London: Rebman, Limited. 1908. Pp. 466. Price 9*s.* net.

SINCE we last reviewed this work it has increased in size from a small book of 290 pages to one containing nearly double the number, and now, in its fifth edition, takes its place amongst the numerous standard works on bacteriology which are intended primarily for the use of medical men and medical officers of health. In scope, arrangement of material, and general treatment of the subject, it differs in few respects from its numerous competitors. Originally intended to serve as a laboratory manual for the unaided student it still bears traces of this purpose in the large amount of space devoted to bacteriological technique and biology of micro-organisms; only one-third of the book is occupied with the detailed description of pathogenic micro-organisms. The original idea has now apparently been abandoned and the book opens with the statement that "Bacteriology is not a subject which one should attempt to learn from books alone or without instructors"—a statement with which we heartily agree. A somewhat dogmatic method of expression adopted deliberately, and we think wisely, as being best adapted for the student is a second distinguishing feature of the book. This attitude is, to a certain extent, apologised for in the preface and, of course, disarms criticism. The book has been thoroughly revised and additions have been made where required by recent advances in knowledge; some of these additions are, however, so stated that they suggest that the person responsible for them has been out of touch with clinical medicine.

Considerable alterations have been made in the chapters dealing with milk, water, and disinfectants. These subjects are treated rather fully for a work of this size and character. The section on milk is good and contains many useful facts, and a definite, though not dogmatic, opinion is expressed in favour of pasteurisation as the best safeguard of the supply. The section devoted to water is too brief to be of much service except as an introduction to the subject but it is remarkable for the doubt cast on the value of any chemical or bacteriological analysis of water. This opinion appears to be shared by the reviser who is well qualified to speak on this point.

The chapters on immunity and allied subjects were always good and now present a very complete view of Ehrlich's theory and its modifications, together with a discussion of the question of deviation of complement.

The part of the book which deals with the pathogenic organisms is of average excellence and as numerous references to original work are given in this book the student can easily acquire further information. The fashion of attaching the name of the observer to each piece of information adds reality to the statements but rather tends to produce disjointedness in the treatment of the subject. It would seem, too, that there must be much vain repetition in medical work as a reviewer becomes painfully aware that there seem to be more observers than facts observed. A short account of the pathogenic protozoa completes the work. The illustrations are numerous and are for the most part reproductions of good original photographs.

The book is of neat appearance but seems to have been prepared for the press hastily. It is always difficult to distinguish between error and a difference in custom when dealing with misprints in an American book, but there is an error in the reference to an illustration on page 106, and "gemical" (? germicidal), "predisfusition," "sterptococcus," "slought" (? slough), "methplene" (? methylene), and so on, are unusual variations in spelling. The book is printed in America.

---

## LIBRARY TABLE.

*Lists of Muscles for Electrical Testing.* London: H. K. Lewis. Price 2*s.* 6*d.*—*The Maternity Nurses' Charts and Case-Book.* By GERTRUDE C. MARKS. London: Baillière, Tindall, and Cox. 14 charts. Price 1*s.* net.—These two publications are compiled to facilitate case recording. The first contains a number of detachable pages gummed on one side and printed on the other with the names of various nerves coupled with the muscles supplied by them, with blank spaces for the records of electrical reactions. The sheets are of three kinds, dealing with the lower limb, the upper limb, and with the head, neck, and trunk respectively. They should prove a useful accessory to the neurologist's case-book. Miss Marks's "Maternity Nurses' Case-book" is arranged so that the complete record of a case is seen at one opening. On one page are a 14 days' morning and evening temperature chart with blank lines for the progressive weight of the baby and the usual information concerning the patient, whilst the opposite page is ruled for the entry of "dates" and "remarks." It is a handy little book and its intelligent use should have an educational value for the nurse.

*Interim Report on the Parasites of Grouse.* By A. E. SHIPLEY, M.A., Hon. D.Sc., F.R.S., Fellow and Tutor of Christ's College, Cambridge.—It was with pleasurable anticipation of an hour's interesting and instructive reading that we opened the pages of the Interim Report of the Grouse Disease Inquiry. We were not disappointed and soon were absorbed in following the description of the parasites of this popular little bird. The report is based mainly, we are told, on the author's own observations, in which he was very ably assisted by Dr. E. A. Wilson and Mr. J. C. F. Fryer of Caius College, of whom also he mentions that many of the facts were first noticed by them. The investigations were largely carried out in the very home of the birds in different parts of Scotland. Outbreaks of disease were investigated actually in their immediate neighbourhood, a laboratory oftentimes being improvised in a stuffy back room of an inn. It was noted by Dr. Shipley that the disease universally referred to by gamekeepers as "the" grouse disease was caused by worms, hence the importance of the subjects embraced by this report. The parasites are presented under

two heads, Ectoparasites and Endoparasites. The former or external parasites are worthy of notice, mainly because of their possible rôle in the life-history of some of the internal parasites. In this section mention is made of the lice that infest grouse, and the flies, fleas, mites, and ticks which are to be found from time to time on this bird. The endoparasites are of more pathological significance, since some of them are responsible for serious outbreaks of disease. There are several varieties of platyhelminthes which, however, appear to do little harm. Of the nematode worms the strongylus pergracilis is the cause of serious epidemics of Klein's disease. The syngamus trachealis is very rarely found and no disease has as yet been traced to it. Similarly the trichotrachelidæ have one representative which occurs sparingly in the duodenum. Dr. L. Sambon has described a microfilaria in the blood of the grouse; he also with Dr. C. G. Seligmann has recently described a leucocytozoon, one of the hæmosporidiæ, which they found in the blood of a grouse. No disease analogous to the one which is so fatal to turkeys caused by an amœba has been observed in the grouse. The work has not been carried out under the most favourable conditions and the amount of original observations accurately described redounds to the credit of the investigators. We look forward with pleasure to the completed report of the committee, which will appear in due course.

*Some Characteristics and Requirements of Childhood.* By ALICE RAVENHILL, F.R.San.I. Leeds and Glasgow: E. J. Arnold and Son, Limited. 1908. Price 9*d*. net.—Miss Alice Ravenhill has written an interesting little book which has arisen out of the desire to draw the attention of those whose time does not permit them to study more detailed works on the subject to the significance of childhood. The characteristics and requirements of childhood are well and clearly set down, the educational needs of the children are considered in a temperate manner, and the educational needs of the school child are well catered for. There are shoals of publications purporting to cover this ground—either this only or this and a great deal more. Of some of these, particularly the more ambitious, we have had occasionally to say uncomplimentary things, but here it is our pleasant duty to be laudatory. Miss Ravenhill has set down clearly the salient characteristics of childhood and has indicated the chief requirements which the child ought to expect from those in charge.

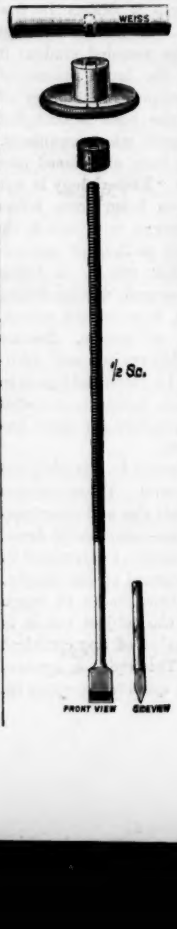
## JOURNALS AND MAGAZINES.

*The Quarterly Journal of Medicine.* Edited by Professor WILLIAM OSLER, Dr. J. ROSE BRADFORD, Dr. A. E. GARROD, Dr. R. HUTCHISON, Dr. H. D. ROLLESTON, and Dr. W. HALE WHITE. Vol. II., No. 5. October, 1908. Oxford: At the Clarendon Press. Subscription price 25*s*. per annum, single numbers 8*s*. 6*d*. each.—The contents of this number are: 1. Extensive Atheroma and Dilatation of the Pulmonary Arteries without marked valvular lesions as a not very rare cause of fatal cardiac disease in Bengal, by Major Leonard Rogers, I.M.S., with four plates. This paper is a study of ten cases, one of which was correctly diagnosed during life, being the first in which this has been achieved. Major Rogers states that this condition of extensive atheroma of the pulmonary arteries with no marked disease of the systemic vessels and without any valvular affection occurs in Bengal and produces great hypertrophy and dilatation of the right cavities of the heart. It causes palpitation, dyspnœa, and dropsy, from tricuspid regurgitation, and in some cases terminates in hydropericardium to which the fatal result may be due. The cases nearly always occur between the ages of 20 and 40 years and they are almost certainly of syphilitic origin. 2. A paper on a case of Complete Heart-Block, by Dr. A. M. Gossage. The patient was a woman, aged 61 years, with complete heart block, the auricles and ventricles beating quite independently of one another. The case was associated with attacks of giddiness and convulsion of Stokes-Adams type. 3. A paper on Rheumatic Myocarditis, by Dr. Carey P. Coombs, in which it is shown that hypertrophy of both ventricles may occur without obvious mechanical cause and that dilatation is constant. Various histological lesions are described and these are of so special a kind as to support the conception of a specific rheumatic infection. 4. A paper on Mongolism and its Pathology, by Dr. W. Bertram Hill. This is a careful analysis of eight cases and affords an interesting study of the condition. The clinical features are discussed in detail and the pathological results obtained in two necropsies are described and compared with those found in other recorded cases. 5. A paper on the Medical Aspects of Pyelitis in Pregnancy, by Dr. E. Ward. The name of encyopyelitis is proposed for this condition which is stated to be more common than is generally supposed. It is due to infection of the renal pelvis with organisms, usually the bacillus coli communis. The prognosis is worse than has hitherto been recognised. 6. A Critical Review of Polycythæmia, Erythrocytosis and Erythæmia, by Dr. F. Parkes Weber. The extensive literature of these interesting conditions is reviewed and abstracted. A very long list of references is appended and the article should be of considerable value for purposes of reference.

# New Inventions.

## A SPHENOIDAL CHISEL.

OCCASIONALLY it is desired to open the sphenoidal sinus on account of annoying symptoms arising from an accumulation of pus within this sinus. The chisel described below is recommended by the author as an aid to performing this operation. The instrument consists of a round rod of steel $\frac{1}{8}$ in. in diameter and of a total length of 6 in., which includes a terminal chisel $\frac{1}{8}$ in. thick, $\frac{1}{4}$ in. broad, and $\frac{3}{8}$ in. long, with a central cutting edge. The chisel proper is rectangular in section. A screw thread is cut on the first four inches of the proximal end of the rod. Upon this thread is fitted a threaded collar of blue steel $\frac{1}{4}$ in. in length which can be easily manipulated with the fingers. This collar is so adjusted that its terminal extremity occupies a position on the rod which corresponds with the external skin on the septum, when the cutting edge of the chisel is carefully placed against the anterior wall of the sphenoidal sinus. When the surgeon has adjusted the chisel and while he holds it in proper position an assistant will tap gently the proximal end of the rod with a lead mallet until the proximal end of the collar corresponds with the external skin of the septum. The rule for placing this chisel correctly is to hold the blade of the chisel vertically, to rest the rod on the floor of the nostril, and to pass it inwards in contact with the lower margin of the superior turbinated bone, in which case the chisel will enter the sphenoidal sinus without fail when it is driven down to the proper distance. As a result of this manipulation a hole is made parallel with the septum $\frac{1}{4}$ in. deep, $\frac{1}{4}$ in. broad, and $\frac{1}{8}$ in. thick into the sphenoidal sinus. With the use of



the collar the operator is enabled to estimate correctly, without any chance of error, the exact depth to which the chisel has penetrated, an advantage which will be appreciated. With the chisel properly held a cut ¼ in. in depth will penetrate one-half the distance through the sphenoidal sinus. This opening is as large as that made into the sphenoidal sinus by the usual means—namely, a stout curved pointed knife which is entered into the natural outlet of the sphenoidal sinus for the purpose of enlarging its opening, through which opening is introduced a punch worked with strong levers whereby the desired portion of bone is removed. I would ask readers of THE LANCET to compare the complications which are liable to be encountered by the two methods of performing this operation. With the chisel there is no blood to obscure the vision until after the chisel has been properly placed, subsequently to which there is no necessity to look into the nose. With the stout curved knife, apart from the great difficulty of entering the natural opening of the sphenoidal sinus, the parts are obscured with blood from the first moment that the knife comes in contact with the mucous membrane. When there is any difficulty in effecting the removal of this chisel or when it is desired to increase the lateral measurements of the opening made, a set nut with a projecting hub is adjusted with the fingers over the thread on the proximal end of the rod. The projecting hub is turned towards the proximal end of the rod and the nut is screwed down on the rod for one half an inch. There is also a round handle ⅜ in. in diameter and two inches in length, which has an opening partly through its middle. A thread is cut in this opening which allows the handle to be screwed on to the proximal end of the rod with the fingers. When the handle is fully screwed down the set nut is unscrewed until its hub binds against the handle. The operator is thus furnished with means whereby he can readily remove the chisel or increase the lateral dimensions of the hole in the sphenoidal sinus to ¼ in. by twisting the rod through an angle of 90 degrees. Operators are advised to inspect the sectional skull before performing this operation. Messrs. J. Weiss and Son, 287, Oxford-street, London, W., manufacture the instrument.

CHARLES AUBREY BUCKLIN, M.D.

## BRITISH MEDICAL BENEVOLENT FUND.

AT the November meeting of the committee 22 cases were considered and grants amounting to £180 were voted in relief to 18 of the applicants, two cases being passed over and two postponed for further inquiry. Appended is an abstract of the cases assisted:—

M.B., C.M. Edin., aged 66 years, who practises in Lancashire. Applicant's receipts during the last two years have seriously decreased owing to competition, depression in trade, and the number of medical institutions, and he is unavoidably in arrears with his rent. Three children, aged 19 to 10 years, one being an invalid. Voted £12.

Widow, aged 48 years, of L.R.C.P., L.R.C.S. Edin. No income. Since husband's death has partially maintained herself by nursing but is at present unable to work on account of ill-health. Three children, just self-supporting. Relieved 14 times, £144. Voted £12.

Daughter, aged 58 years, of late M.D. Lond. No income. Lets lodgings. Health indifferent. Relieved 25 times, £190. Voted £6.

Daughter, aged 61 years, of late M.R.C.S., L.S.A. For many years acted as housekeeper for two sisters who have kept a school, but changes in the neighbourhood have compelled them to give it up. Income less than 10s. a week. Voted £12.

Widow, aged 70 years, of L.S.A. No income. Dependent on two daughters who can ill afford to help. Voted £12.

Daughter, aged 52 years, of late M.D. Edin. No income. Dependent on letting lodgings and has had a very bad season. Relieved once, £12. Voted £10.

L.R.C.P., L.R.C.S. Edin., aged 51 years. No income; incapacitated by spastic paraplegia. Has been living by selling his furniture. One son, aged 12 years. Relieved four times, £48. Voted £12.

Widow, aged 52 years, of L.R.C.P., L.R.C.S. Edin. No income; seven children, aged 22 to 11 years, one being an invalid and one mentally deficient. Slight help from three eldest sons. Relieved twice, £24. Voted £12.

Widow, aged 44 years, of L.R.C.P., L.R.C.S. Irel. Quite unprovided for at husband's death three years ago and now works as a parish nurse, but not being strong cannot command sufficient salary for unavoidable expenses. No children. Voted £5.

Widow, aged 68 years, of L.R.C.P. Edin. No income; children unable to help. Health feeble and eyesight failing. Relieved once, £12. Voted £12.

Daughter, aged 54 years, of late L.S.A. Has supported herself for many years as a governess or companion, but is now in very bad health and unable to undertake any regular work. Relieved seven times, £68. Voted £12.

Widow, aged 57 years, of L.R.C.P. Edin. Six children but only able to give slight help and a grant is sought to provide the youngest son with a suitable outfit for a post which he is promised. Relieved twice, £15. Voted £10.

Widow, aged 71 years, of M.D. Lond., L.R.C.P. Income less than £1 a week and applicant asks for a little help to obtain a few small comforts which at her age she greatly needs. Relieved three times, £21. Voted £5.

Daughters, aged 56 and 48 years, of M.R.C.S., L.S.A. No income and dependent on earnings from needlework and slight help from a relation who can ill afford it. Relieved four times, £44. Voted £12.

Wife, aged 63 years, of M.R.C.S., L.R.C.P. Deserted by her husband five years ago through no fault of her own and is without any means. Endeavours to support herself by needlework and receives a little help from friends. No children. Relieved once, £12. Voted £12.

Daughter, aged 65 years, of late M.R.C.S. No income and in very bad health. Relieved twice, £20. Voted £10.

Widow, aged 71 years, of L.F.P.S. Glasg. Five children, aged 45 to 35. Is a candidate for the Epsom College annuity and hopes to be elected shortly. Relieved twice, £17. Voted £2.

Widow, aged 62 years, of L.F.P.S. Glasg., who was an annuitant of this fund. No means, small earnings by knitting; indifferent health Relieved once, £12. Voted £12.

# Looking Back.

FROM

## THE LANCET, *SATURDAY*, Dec. 11th, 1830.

### HEADACH CAUSED BY THE PRESENCE OF A SCOLOPENDRA IN THE FRONTAL SINUS.

WE extract the following case from the report of the "Societé des Sciences Médicales, du Department de la Moselle."

A farmer's wife, twenty-eight years of age, residing in the neighbourhood of Metz, had for a long time been affected with an unpleasant itching sensation in the nose with coryza, to which symptoms in the year 1827, violent headach acceded, so that she was at length obliged to apply for medical aid. The headach was irregularly intermittent, and generally began at the root of the nose and the middle of the forehead, or at the right frontal region, extending thence first to the right side, and then over the whole head. The attack was accompanied by a great discharge of tears, and sometimes even nausea and vomiting; the features were forcibly distorted, the jaws firmly closed, and the eyes and ears so very sensible, that she could not bear the least light or any noise. At other times she became delirious, pressed the head between her hands, and ran about in a state of distraction. The pain was, according to her statement, like the strokes of a hammer, or as if something was perforating the skull, and the fits generally returned about twelve times in twenty-four hours; sometimes the headach continued uninterruptedly for several days. The coryza existed during the whole period and the discharge was occasionally very fetid and mixed with blood. Some medicines were employed, but no regular plan of treatment was followed, and it was not before a twelvemonth's suffering that this singular affection terminated, after the expulsion of a worm from the nose, which moved with rapidity, and when placed in water, remained alive for several days; it was afterwards killed by being put in alcohol, and sent to M. Maréchal, who reported the case to the Society. He found the animal to be more than two inches in length, and one line in breadth; it had two antennæ, was of yellowish colour, flat, and consisted of sixty-four rings, on each of which were two legs. M. Maréchal subsequently transmitted the insect to MM. Hollandre and Roussel, who ascertained that it was a scolopendra electrica.

BERI-BERI AT CARDIFF.—An inquest was held at Cardiff on Dec. 4th relative to the death of a Lascar seaman who had died at the Seamen's Hospital. The medical officer of the institution stated that he believed that the deceased had been suffering from beri-beri and that death resulted from syncope. The jury returned a verdict in accordance with the medical evidence and the coroner directed that the sanitary authorities should be informed that a case of beri-beri was believed to have occurred upon a ship coming to Cardiff.

# THE LANCET.

*LONDON: SATURDAY, DECEMBER 12, 1908.*


## The Treatment of Incipient Insanity.

IN an address recently delivered before the Forfarshire Medical Association Dr. A. R. URQUHART made certain suggestions for bridging or avoiding the gap which is so often apparent between an insane patient's home and the asylum. He referred to the work that had been done in Glasgow in this connexion. There the fact that a person is mentally afflicted is reported to the medical man who visits and deals with him in a systematic manner. It is plain that it is not necessary to remove every person so afflicted from his home, even though he be certifiably insane, and if it be desirable to remove him from his home it is by no means invariably desirable to place him in an asylum, and for such cases provision is made in the Eastern District Hospital where the patients are placed under observation, care, and treatment until recovery takes place or removal to an asylum becomes imperative. Dr. URQUHART suggested that at Dundee, where he was delivering his address, two small wards with 30 beds would be sufficient. The name of such wards was a matter of considerable importance and such terms as "mad wards" or "asylum wards" could not be permitted. Dr. URQUHART laid much stress on the necessity of regarding insanity as an affair of medicine and he urged his audience not to be diverted from the path of correct treatment or to be obstructed therein by the law. The law imposed upon them a primary consideration of conduct, while medicine imposed upon them the recognition and investigation of disease and the endeavour to remedy or to assuage its ravages. Their plain duty was the recovery of the curable, the care of the incurable, and the after-care of the convalescent. Professor MACEWAN also addressed the meeting and pointing out that it was one of the most noticeable features of modern medicine that it endeavoured to deal with cases of disease from their earliest beginnings, so as to make some impressions before the patients became incurable, stated that in insanity the patients did not get any treatment until they had become insane, that is, until they could be certified for detention in an asylum. He argued that cases of incipient insanity should be treated in a general hospital and his ideal would be that there should be a department in the hospital for nervous diseases and that the term insanity should disappear.

In these columns we have from time to time advocated similar schemes and in the report of the Commission upon the Feeble-minded provision to meet such requirements is urged upon the nation. There is without doubt a large class of unfortunate mental patients for whom the profession, the charitable public, and the State have failed to make sufficient provision. Too often the medical man, able to recognise insanity when it has become certifiable, fails, from lack of special knowledge, to regard as serious certain symptoms which are, in fact, the prelude to mental breakdown or, recognising them, is at his wits' end to know what to do or where to place his patients before the moment arrives when certification is no longer to be avoided. So also have the charitable public failed to recognise that the insane person is a sick person and that his illness is one that can often be successfully treated if treatment is commenced early and that the longer treatment is postponed the less good can it effect. It is as if the public should think that a patient cannot have a pulmonary tuberculosis until he has had a hæmoptysis. To the alienist the most heartrending experience is to note the neglect of treatment at that stage of the disease when complete restoration to health is still possible and the slow declension of the mental faculties which he knows must eventuate in such an outbreak that even the public must recognise that disease is present. That the State has to a certain extent been responsible for this unfortunate state of affairs is obvious. In its desire to bring every mental patient under its cognisance it has created a dislike for the publicity of certification, which only induces the friends of patients to take them to the alienist when certification has become absolutely necessary; it has erected a barrier between the medical man and his mental patient which can only be broken down by certification or by the ignoring of the law on the part of the medical man, and it has induced a general impression that an asylum is a species of prison to which persons must go against their will, in which they are "confined," and from which they sometimes "escape," and to which, if "caught," they can be taken back by the constable.

It is pleasing to reflect that this heavy wastage of the mentally sick to the ranks of the certified insane, which is to a large and as we believe to a hitherto unsuspected extent preventable, is to be combated in London by the beneficence of a distinguished alienist, Dr. H. MAUDSLEY. We trust that his scheme may before long be realised. We cannot, however, but regret that the projected hospital for mental diseases cannot be coupled, to some extent, with a hospital for nervous diseases. One of our hospitals for diseases of the nervous system is shortly to be rebuilt on a large scale and is possibly to be provided with accommodation for so-called "borderland" cases and this would seem to afford an opportunity of considering the desirability and the feasibility of establishing such a relationship. That in the out-patient departments of our hospitals for nervous diseases many cases are to be met with which are, in fact, mental cases is a well-recognised fact, and it is in those departments that is most acutely felt the problem of what to do for the accommodation of the unfortunate sufferers.

## The Progress of the Housing and Town Planning Bill.

IN spite of, or it may be because of, the small attendance at some of the meetings of the Standing Committee of the House of Commons which has been considering the Housing and Town Planning Bill, the labours of the Committee are now completed. Clause 13, which amends the

procedure for the closing of uninhabitable houses laid down in Section 32 of the Housing of the Working Classes Act, 1890, has been amended in an important particular. Under the Act of 1890 a closing order can be made by the justices on the application of the local authority, which in its turn usually makes such application upon the report of its medical officer of health. Clause 13 of the Bill dispenses with the reference to the justices and enables the local authority to make an order prohibiting the use of a dwelling-house for human habitation until in the judgment of the authority the house is rendered fit for habitation. The closing order may be determined by the authority if the house is made fit, and the owner may appeal to the Local Government Board if his application for such determination is refused by the authority, and he may also appeal to the Board within 14 days of the closing order being served upon him. The amendment which the Committee has added to this clause makes it compulsory upon the Local Government Board to hold a public local inquiry before dismissing appeals made to the Board under the clause, but even so the clause, when operative by law, should prove of immense aid to practical sanitarians. Clause 35 enables the Local Government Board to make rules to determine the procedure of these appeals and before considering any appeal the Board may require the appellant to deposit such a sum as will cover the cost of the appeal. The success or failure of Clause 13, giving as it does greater facilities to local authorities in the closing of uninhabitable houses, will depend in great measure upon the rules which the Board frames under Clause 35 of the Bill and also upon the personality of the official who holds the public inquiry. A large number of local authorities, more especially in the rural districts, are not at all anxious to have cast upon them the responsibility of closing houses owned, maybe, by their friends or neighbours, and they will not be adverse to the power of appeal being exercised in order to take from their shoulders any odium attached to the making of compulsory closing orders. The process of appeal must therefore be made as simple and inexpensive as possible, and the official who inquires into the circumstances must be one who not only has had experience in the administration of the Housing Acts but he must be familiar with those conditions that are to the detriment of a house, and he must be able to state in a convincing manner his reasons for supporting, or dissenting from, the action of the local authority.

A county council is enabled to appoint a medical officer of health under Section 17 of the Local Government Act, 1888, and Clause 57 of the Bill makes such an appointment compulsory. Under the same clause the Local Government Board may prescribe the duties of a county medical officer of health, and Sir JOHN DICKSON-POYNDER succeeded in adding sub-clauses whereby the county medical officer of health cannot be appointed for a limited period; can only be removeable from office by, or with the consent of, the Local Government Board; cannot engage in private practice; and cannot hold any other public appointment without the consent of the Board. Three amendments to Clause 57, all having nearly the same end in view, were said to be outside the scope of the Bill. They were set down by Sir FRANCIS POWELL, Sir WALTER FOSTER, and Mr. WEDGWOOD. Sir FRANCIS POWELL'S amendment was to the effect that "no medical officer of health appointed under this or any other Act shall be removeable except by or with the sanction of the Local Government Board." Sir WALTER FOSTER'S amendment provided that a medical officer of health should not hold office for a limited period but should be liable to dismissal by the electing authority with the assent of the Local Government Board, and Mr. WEDGWOOD, in his amendment, limited this security against arbitrary dismissal to medical officers of health who were not in private practice.

It is a little difficult to understand how these amendments can be altogether outside the scope of the Bill. If district medical officers of health were not referred to in the Bill then amendments dealing with their appointments might very well be ruled as inadmissible. Such, however, is not by any means the case, for Sub-clauses (2) and (3) of Clause 58 require the medical officer of health of a district council, under a penalty of £10 for non-compliance, to give to the county medical officer of health any information which it is in his power to give and which may reasonably be required of him. This is the first instance in which it has been proposed that a district medical officer of health should be required to perform a particular duty for the non-performance of which a penalty has been proposed. There is every reason, therefore, for making the position of the district medical officer of health absolutely unassailable. The duties of the county officer are administrative and those of the district officer are executive, so that of the two the latter is the more likely to come into conflict with individual members of the electing body. We trust that at any rate one of the three amendments referred to will be introduced next session on the report stage of the Bill and that the President of the Local Government Board will be asked to state definitely what are his reasons for desiring to withhold from whole-time district medical officers of health the same security against unjust removal from office which he has so readily afforded to the county officials.

## The Law and Medical Practice by the Unqualified.

A PROSECUTION of an unusual character arising out of the use by R. S. ROSS, an unqualified person, of a title implying registration as a medical practitioner took place recently at Bishop Auckland. In cases of the usual class an unqualified person supplying treatment of a medical character—as the law, unfortunately for his patients, permits him to do—uses initials on his stationery implying medical degrees, or a brass plate upon his door which makes the same suggestion, or calls himself "Dr.," and so commits an offence for which he can be punished. Very frequently he is without medical training of any kind, and sometimes he has purchased for a small sum of money a bogus degree conferred by a foreign university, so-called, the uselessness of which might be recognised in the country of its origin but which in England helps the cunning quack to impose on the unwary. In the case referred to above the defendant, according to the story told on his behalf, was at one time a medical student and acted as assistant to a qualified medical practitioner. When the impropriety of such assistance became established and the

employment of the unqualified assistant ceased, the defendant found himself unable to pass his final examination and apparently took to practising without a qualification. In May of the present year it became necessary that a batch of recruits destined for the Spennymoor detachment of the 6th Battalion of the Durham Light Infantry should be medically examined before enrolment, and the colour-sergeant of the company called in Ross to make the examinations under the impression that he was a registered medical practitioner. He made the examinations and signed necessary certificates over the words "medical officer" printed on the official form, receiving 17*s.* as remuneration for doing so. According to the evidence of the colour-sergeant the defendant had acted on previous occasions in a similar manner but had not received fees for doing so and his certificates had been accepted without question; on the recent occasion he had signed the receipt for the 17*s.*, adding the word "surgeon" to his signature, and this was charged as a second offence. The magistrates who heard the case practically treated the matter as one breach of the law, ordering the defendant to pay the fees of the court, amounting to 5*s.* 6*d.* on the first charge and a fine of £3 inclusive of costs on the second. He appears to have been dealt with adequately, as no doubt he will not repeat his offence and as the carelessness of the military authorities in employing him laid him open to temptation.

The official examination of recruits for military service is, however, one of importance to the State and an unqualified person pretending to perform it necessarily deprives of an emolument a medical practitioner who has not failed to qualify himself as such. A case of this kind, however, even more than those of the more ordinary class to which reference has been made, exposes to criticism the attitude of the law and of the public which acquiesces in it towards the practice or pretended practice of medicine by the unqualified. A man situated as the defendant was may be fined for signing his name on an official form after examining a recruit for the Territorial Army. If the same recruit chooses to consult in civil life an absolutely ignorant and illiterate quack, whose flamboyant advertisement in the pages of a local newspaper or on a hoarding has attracted his notice, the law, regarding him as an independent agent selecting his own medical adviser, affords him no protection whatever. The quack knows the law and as a rule manages to steer clear of the one risk which it places in his course. He knows, that is to say, that so long as he says and does nothing which can be construed as the use of a title implying registration as a medical practitioner, he can fleece his victim and endanger his health or his life with impunity. Members of the medical profession in a spirit of thankfulness for small mercies, perhaps ought to consider it a matter for self-congratulation that the public allows them some measure of protection against the competition of unscrupulous and fraudulent pretenders, but they may well marvel that the same public should so contentedly fail to protect itself, and in particular that it should leave the humbler and less educated portion of the community to the tender mercies of unscrupulous rogues. There are charlatans, no doubt, who make their living out of the credulity of those who ought to know better than to trust them but they are few in number and harmless in the results which they bring about in comparison with those who reap their harvest among the working classses. Such a state of affairs is inconsistent with the high honours accorded by the State to men distinguished in the practice of medicine and surgery, and it is to be hoped that the anomaly may be corrected soon.

The General Medical Council is proving itself alive to the importance of the matter, as was shown by the report of its unqualified practice prevention committee, an account of which we published in THE LANCET last week. The report contained full information as to the prevention of unqualified practice in other countries, and as a result of its adoption the General Medical Council has signified to the Privy Council that in this country persons requiring medical aid are not sufficiently protected by law from quacks and has asked for the appointment of a Royal Commission to inquire into the evil effects of unqualified practice.

# Annotations.

**"Ne quid nimis."**

## A DEPARTMENTAL COMMITTEE ON THE MIDWIVES ACT.

A Departmental Committee has been appointed by the Lord President of the Privy Council to consider the working of the Midwives Act, and in particular with reference to the supply of midwives and the cost of training, the remuneration of medical men summoned on the advice of midwives under the rules in pursuance of the Act, and the delegation of their powers by county councils under the Act. The chairman of the committee is Mr. Almeric W. FitzRoy, clerk of the Council, and the members are: Mrs. Charles Hobhouse, Mr. J. S. Davy, C.B., assistant secretary, Local Government Board; Dr. A. H. Downes, medical inspector for Poor-law purposes, Local Government Board; Dr. F. H. Champneys, chairman of the Central Midwives Board; and Mr. John Pedder, a principal clerk in the Home Office. Mr. H. J. Stanley, private secretary to the Lord President, and Mr. F. J. Welch, staff clerk in the Local Government Board, will act as joint secretaries. We are heartily glad to learn that the working of this Act is to be made the subject of official inquiry. It is an open secret that the Act has so far not given satisfaction, and this must have been gleaned from our own columns. The difficulties of securing a uniform supply of midwives throughout the country are very great, the remuneration of medical men summoned under the Act to the assistance of midwives has not been arranged properly, and the number of unworthy women who have secured a position on the Midwives Register is alarmingly great. This is shown, for example, by an account of the last meeting of the Central Midwives Board (p. 1787). But while we welcome a Departmental Committee to suggest remedies in these circumstances we do not consider that the medical constitution of the committee is very fortunate. Dr. Downes is an admirable and experienced official of the Local Government Board, and Dr. Champneys is the painstaking chairman of the Central Midwives Board, but who represents general medical interests? Who on this Committee really understands what they are? Some well-known general practitioner or one of the Direct Representatives of the medical profession on the General Medical Council should be invited to strengthen the deliberations.

## NOVEMBER AT HOME AND ABROAD.

| — | Highest temperature. | Lowest temperature. | Mean maximum temperature. | Mean minimum temperature. | Mean temperature for month. | Mean range of temperature. | Number of days with rain. | Total fall in month. |
|---|---|---|---|---|---|---|---|---|
| | ° | ° | ° | ° | ° | ° | * | Inches. |
| Scilly ... ... ... | 59 | 44 | 55 | 49 | 52·3 | 6 | 10 | 0·96 |
| Jersey ... ... ... | 63 | 33 | 55 | 46 | 50·4 | 9 | 8 | 1·37 |
| Torquay ... ... | 61 | 40 | 55 | 47 | 50·8 | 8 | 8 | 0·75 |
| Sandown, Isle of Wight ... ... | 64 | 37 | 55 | 45 | 50·2 | 10 | 7 | 1·17 |
| Weymouth ... ... | 62 | 33 | 54 | 45 | 49·9 | 9 | 7 | 1·11 |
| Bournemouth ... | 62 | 27 | 53 | 42 | 47·8 | 11 | 5 | 0·92 |
| Brighton ... ... | 62 | 29 | 53 | 42 | 47·3 | 11 | 3 | 1·15 |
| Bath ... ... ... | 60 | 25 | 53 | 40 | 46·6 | 13 | 9 | 0·93 |
| Tunbridge Wells | 61 | 25 | 51 | 37 | 44·2 | 14 | 7 | 1·07 |
| Buxton ... ... ... | 55 | 23 | 48 | 37 | 42·4 | 11 | 15 | 4·34 |
| Harrogate ... ... | 55 | 26 | 49 | 38 | 43·5 | 11 | 9 | 1·60 |
| Manchester ... ... | 58 | 33 | 51 | 41 | 45·9 | 10 | 13 | 3·53 |
| Nottingham ... | 57 | 17 | 50 | 39 | 44·5 | 11 | 9 | 1·30 |
| London ... ... ... | 59 | 30 | 53 | 42 | 47·5 | 11 | 5 | 0·72 |
| Paris ... ... ... | 60 | 21 | 49 | 35 | 41·9 | 14 | 11 | 1·74 |
| Berlin ... ... ... | 48 | 18 | 45 | 29 | 37·3 | 16 | 10 | 1·24 |
| Brussels ... ... ... | 57 | 21 | 48 | 34 | 40·6 | 14 | 14 | 2·60 |
| Nice ... ... ... | 63 | 39 | 58 | 45 | 51·6 | 13 | 3 | 1·26 |
| Genoa ... ... ... | 65 | 41 | 58 | 48 | 52·9 | 10 | 4 | 1·82 |
| Florence ... ... | 62 | 30 | 54 | 38 | 45·6 | 16 | 7 | 2·50 |
| Rome ... ... ... | 65 | 31 | 58 | 45 | 51·3 | 13 | 8 | 5·05 |
| Naples ... ... ... | 67 | 42 | 59 | 49 | 53·9 | 10 | 12 | 6·52 |
| Palermo ... ... | 76 | 40 | 66 | 49 | 57·6 | 17 | 14 | 5·11 |
| Malta ... ... ... | 81 | 41 | 69 | 59 | 63·9 | 10 | 10 | 4·64 |
| Algiers ... ... ... | 81 | 50 | 73 | 59 | 66·0 | 14 | 7 | 4·38 |
| Palma, Majorca ... | 75 | 43 | 69 | 53 | 61·0 | 16 | 8 | 0·91 |
| Lisbon ... ... ... | 70 | 48 | 63 | 54 | 58·4 | 9 | 12 | 6·47 |
| Biarritz ... ... ... | 79 | 37 | 63 | 49 | 55·9 | 14 | 7 | 0·84 |

* A day with at least 0·04 inch.

Except for a few days round about the 10th and again for a short time about the 20th the weather over this country was very mild for the time of year, while, and this is very unusual with mildness in November, it was also much drier and brighter than the ordinary third month of autumn. In Italy, on the contrary, the temperature was rather lower than the normal, the wind often cold from the northward and north-eastward, and, as generally happens in that country after the long series of practically rainless and cloudless weeks during summer and early autumn, there was much rain. In the central countries of the continent and also in Belgium and the north-east and east of France the temperature was low for the time of year and frost of winter severity was rather frequent. The cold is strikingly shown by the mean temperature figures for the month at Berlin, Brussels, and Paris when compared with those in London and the other inland places in this country. Our metropolis was fully 10° warmer than Berlin and more than five and a half degrees warmer than Paris; while even Buxton, in spite of its altitude of nearly a thousand feet above the sea, enjoyed a mean maximum temperature almost as warm as that of Paris and a mean night temperature two degrees higher. Comparing the south-west coast of this country with some of the Mediterranean resorts it is seen that the Scilly Isles were milder than Nice, Florence, and Rome, and only slightly cooler than Genoa, while the night temperature, as shown by the mean minimum, was as high as that at Naples and Palermo. The nights at Torquay, Sandown, and Weymouth, although considerably cooler than at Scilly, were at least as mild as they were at Nice and Rome, and much milder than at Florence, while the mean minimum at the last-named city was identical with that at Harrogate. That Harrogate should have the same mean warmth during the nights of November as Florence is perhaps the most striking feature of the weather of last month. The Yorkshire resort is by no means noted for its mildness at night at any time of the year, and when there is any frost in that part of the country it is one of the first places to feel it. Algiers maintained its warmth with little diminution and its mean temperature of 66° was higher than that of any month of the summer in the south of England. Lisbon alone among the foreign stations experienced a temperature as equable as that on the south-west coast of England, but no place could compare with the isolated Scilly where the mean diurnal range was no more than six degrees.

## HEROIC MEDICAL MISSIONARY.

THE *Sunday Strand* magazine for November prints an account of an interview with Dr. A. Macdonald Westwater, a medical missionary whose exploits during the last 27 years at Liaoyang have made his name a household word in Manchuria and earned him the admiration of Chinese, Japanese, and Russians no less than of his compatriot fellow-workers. He went first to China in 1881 as an agent of the United Presbyterian Church of Scotland, and after four years' work in the Shantung province he proceeded to Liaoyang, the ancient capital of Manchuria. Here he founded his mission in the face of bitter anti-foreign and anti-Christian feeling which often brought him into physical danger, and little progress was made until a severe flood devastated the district in 1888, when he gained the confidence of the people by superintending extensive relief works in a most able and energetic manner. At this time, too, his practice of western medicine began to bear its fruits and several high officials put themselves under his treatment. In the year 1895 the Chino-Japanese war broke out, during which Dr. Westwater retained the ground which he had won, although his colleague, the Rev. James Wylie, was murdered in the main street by Manchu soldiers. By 1900 his work seemed well established, but in that year the anti-foreign Boxer rising occurred and swept every missionary out of Manchuria. Hospitals, churches, and mission houses were burnt and a persecution of native Christians was instituted which resulted in many martyrdoms by murder and torture. Dr. Westwater and his family escaped to Japan, but he almost immediately took service under the Russian Red Cross and returned with the Russian repressive expedition to Manchuria. It was on this march that he earned his title of "the saviour of Liaoyang." The Russians had sacked and pillaged town after town, and on approaching Dr. Westwater's old station their advance guard was fired upon by some insurgents inside the town. To save "his people" from a terrible retaliation Dr. Westwater volunteered to ride unarmed and unattended into the town to arrange its prompt surrender under the Russian pledge of protection from reprisals. This he did and with complete success. Mr. Wigham, the war correspondent, described this action as "the bravest deed I ever saw," and anybody who considers the circumstances in which it was done can well credit his estimate of it. In Dr. Westwater's modest words, "They burnt my home and hospital and drove me and mine from the city. I return and save their homes from destruction and their lives from peril." The saving of Liaoyang by its would-be converter greatly helped on his missionary work and resulted in the building of a new hospital. But he had yet another time of terrible trial to go through during the Russo-Japanese war in 1904, during which for seven days a sharp fight was raging around Liaoyang. The town was

freely bombarded with the result that Dr. Westwater had hundreds of wounded non-combatants on his hands. He worked day and night to relieve them with no trained assistants, and the report of it so delighted the Japanese Marshal Oyama that he sent £200 for the Chinese hospital. The greatest sacrifice of all that medical missionary work has demanded of Dr. Westwater was the life of his wife and fellow-worker who died during the typhus epidemic of 1905. This truly heroic man, who has received decorations from the Czar of Russia, has won much honour for medicine in the East and we take a pride in making his exploits widely known in his profession. During the present year he has been studying at the Edinburgh hospitals but will shortly return to the Far East to continue his labours for the people of Liaoyang, who would seem to hold him in such devotion as was accorded by an older generation to his great compatriot "Chinese Gordon." We wish him many years of continued activity.

## CONGENITAL DIAPHRAGMATIC HERNIA IN AN OLD MAN.

CONGENITAL diaphragmatic hernia in old age is rare. In the *Edinburgh Medical Journal* for November Mr. Alexander Don has reported the following case. A man, aged 61 years, sought advice for flatulence and pain after meals which often lasted for two hours. Occasionally he had also attacks of "sharp, choky pain" in which he could hardly get his breath. These lasted for a few hours and were relieved by "a lot of wind coming up and sometimes some mouthfuls of food." But, as a rule, food was not regurgitated, though he felt inclined to vomit and retched frequently. During the past 18 months the condition was so constant after meals that he was afraid to eat and lost about a stone in weight. Digestive troubles had existed for over 20 years. Recently there was some dysphagia, the food seeming to be arrested just before it entered the stomach and returning in mouthfuls. The organs were normal but the vessels were rather atheromatous. Abdominal examination revealed only slight pain on deep pressure in the epigastrium and double inguinal herniæ which were well supported by a truss. After some months' medical treatment without improvement Mr. Don began to suspect malignant disease of the stomach. On June 7th last exploratory laparotomy was performed. A vertical incision was made a little to the left of the middle line and the liver presented. The chloroform was well taken but when Mr. Don inserted his hand into the abdomen the breathing suddenly stopped. On removing his hand the patient again began to breathe. More chloroform was given but the same result followed whenever the hand was inserted into the abdomen. He was allowed to recover partially from the anæsthetic and the abdominal contents could then be examined, though with less ease than when the muscles were relaxed. On trying to examine the upper part of the abdomen the stomach slipped up under the hand, the breathing again stopped, and the patient became cyanosed. The stomach was seized and pulled into the wound and held there while the hand was passed behind it to examine the cardiac end. The hand could be passed through an opening about three inches in diameter in the diaphragm into the thoracic cavity. The respiratory trouble occurred whenever the hand was passed far through the opening. The difficulty experienced in vomiting or expelling wind during the attacks of pain was explained, for the part of the stomach that would then be herniated might press against the œsophagus. A couple of silk sutures were passed through the anterior wall of the stomach and fixed to the parietal peritoneum on either side of the incision. This was all that could be done owing to the rigidity of the abdominal muscles. The abdominal wound was sutured with through-and-through silk-worm gut sutures, two of which were fixed to the stomach. On August 21st he was still troubled with eructations but was free from the attacks of "sharp, choky pains." On Sept. 9th he could eat almost anything and had gained 6 pounds. Mr. Don has not been able to find a recorded case of diaphragmatic hernia at such an advanced age, though some examples appear to have been discovered post mortem. In this case the œsophageal opening in the diaphragm may have been large at birth but not so patent as to cause trouble, and retching and vomiting may have enlarged the opening so as to allow a portion of the stomach to pass through. A case of congenital defect in the diaphragm has been recorded which gave no trouble until the patient was in the fifth month of her first pregnancy. She was then seized with dyspnœa, vomiting, and symptoms of pneumothorax and died. Post mortem the stomach and intestines were found in the left pleural cavity. This case seems to show that increase of intra-abdominal pressure will enlarge the hernial opening. Naumann has recorded a case in which he operated for strangulated diaphragmatic hernia. The sigmoid flexure and omentum were herniated and could not be reduced. He thought that if he had opened the pleural cavity the negative pressure would have been overcome and he recommends this treatment in future cases. This view explains the behaviour of Mr. Don's patient under chloroform. As soon as air was allowed to enter the abdominal cavity the stomach was driven or aspirated into the thoracic cavity during the negative pressure accompanying inspiration and until it was held down it was impossible to make an examination. Potemski and others recommend opening the thorax, reducing the hernia from that side, and closing the diaphragmatic opening by plastic flaps. Gastropexy, which is an easier operation, does not seem to have been suggested previously. Mr. Don thinks that in his case a second operation may have to be done through the thorax if the symptoms recur.

## ROYAL SOCIETY OF MEDICINE: THE ANNUAL DINNER.

THE annual dinner of the Royal Society of Medicine was held at the Hotel Cecil, Strand, on Dec. 4th, the President of the society, Sir W. S. Church, being in the chair. On the right of the chairman Lord Strathcona was seated and on his left Mr. A. Birrell, M.P. Amongst others present were Mrs. L. Garrett Anderson, M.D. (Mayoress of Aldeburgh), Sir R. Douglas Powell (President of the Royal College of Physicians of London), Mr. Henry Morris (President of the Royal College of Surgeons of England), Dr. G. Wilks (Master of the Society of Apothecaries), Surgeon-General Sir A. Keogh (Director-General of the Army Medical Service), Sir F. Bridge, Mr. Justice Darling, Major L. Darwin (President of the Royal Geographical Society), Surgeon-General A. M. Branfoot (President of the Medical Board of the India Office), Mr. Justice Walton (President of the Medico-Legal Society), Sir W. J. Collins (Vice-Chancellor of the University of London), Mr. C. B. Lockwood (President of the Medical Society), Mr. R. Marcus Gunn (President of the Ophthalmological Society), Inspector-General Sir H. M. Ellis, Sir E. R. Henry (the Commissioner of Police), Sir Lauder Brunton, Dr. F. Taylor, Mr. E. Parker Young, Mr. J. Y. W. MacAlister (secretary), and Dr. J. Nachbar (assistant secretary). Mr. Birrell was loudly cheered on rising to propose the toast of "The Royal Society of Medicine." He said that he understood from the chairman that the society was the outcome of an amalgamation of a number of medical societies which were now termed sections of the society. These had now been welded together into the Royal Society of Medicine and they met that night to

celebrate its first annual dinner. He hoped that the society might long continue to maintain the dignity, the honour, and the tradition of the great medical profession. The Chairman, in responding, said that the society now numbered 2215 Fellows and 959 Members and their library comprised over 100,000 volumes. There were certain special branches of medicine as yet unrepresented in the society, but he trusted they would be embraced before long in that body. They were not the Royal Society of Medicine of London but of the British Empire. Of their Fellows and Members there were 1780 in London, 1174 in the provinces, and 220 were scattered over the face of the world. He hoped that the day would come when the connexion between their society and the representative bodies in the provinces and throughout the British Empire might become closer than it was at the present time. In the course of his speech the Chairman acknowledged the services rendered to the society by the secretary, Mr. MacAlister, and the assistant secretary, Dr. Nachbar. The toast of "The Guests" was submitted by Dr. F. Taylor who mentioned the fact that one of the guests was Mr. Lockwood, the President of the Medical Society of London, which was one of the senior societies possessing house property and holding money in the funds, which society they would be glad to amalgamate with the Royal Society of Medicine. This toast was replied to by Mr. Justice Darling and Sir E. Henry, after which the health of the chairman was given by Sir R. Douglas Powell and was duly acknowledged.

## PIERRE L'ANGLOIS.

UPON several occasions THE LANCET has referred to the erudition and extraordinary knowledge of science and history possessed by the celebrated Dr. Young who, as is well known, was, with the French *savant* Champollion, the first successfully to unravel some of the secrets of the Egyptian hieroglyphic writing. Champollion having continued his researches longer than Dr. Young carried the matter much further and has received more of the fame. It now appears that another medical man so long ago as 1583 attempted to decipher the meaning of the hieroglyphics, and as he was a Frenchman our *confrères* across the Channel will consider that France holds the premier place in the history of the studying of the secret of the writing—unless the suggestion is made that a man with such a name as L'Anglois must have been an Englishman. For the name of this new candidate for honours in the matter was Pierre L'Anglois, Sieur de Bel-Estat, and he was attached as physician to the Duc d'Anjou, who became king in 1574 as Henri III. L'Anglois was not, however, only concerned in medicine but cultivated poetry and took an especial interest in heraldry. His researches into the armorial bearings or achievements of France and Italy led him to endeavour to prove the origin of some of the emblazons from Egyptian hieroglyphs, and finally he published two works on the subject, "Discours des Hieroglyphs Aegyptiens, Emblems, Devises, et Armoiries" and "LIV. Tableaux Hieroglyphiques pour exprimer toutes Conceptions à la Façon des Egyptiens, par Figures et Images des Choses, au lieu de Lettres. Avec Plusieurs Interpretations des Sauges et Prodigues." As with many medical men, he appears to have derived amusement and relaxation from continuing the reading of the classics, for he appends a list of those which he utilised in the execution of his books. This comprises over 30, among which are Aristotle, the Bible, Herodotus, and Erasmus, and it would, if space permitted, be interesting to append this catalogue of a physician's library in France in the sixteenth century. If the question is asked whether his researches into Egyptian matters were of any value and deserve rescue from oblivion in the cause of science the answer must be in the negative. He, however, went the best way to work possible in Europe at his age, consulting such authors as Horus Apollo who wrote specially on the hieroglyphs; Clement of Alexandria who says a good deal about them in his monograph on Egyptian religion; Atheneaus who being a native of Naucratis knew something of the matter; and Porphyry. His book of hieroglyphical emblems is very curious because of the out-of-the-way mediæval lore and strange suggestions which he makes concerning them. He commences with the lion, then proceeds to the elephant, an animal that does not appear as a hieroglyph, so far as is yet known, until about the time of Alexander, but was used frequently on Roman coins, as drawing in various numbers, sometimes four, the Imperial Chariot at triumphs. The bull and the horse follow, and then comes a variety of weapons and utensils and other objects. In future works on the search for the secrets of the hieroglyghs the efforts of L'Anglois will always deserve a brief mention, and in any enumeration of medical men who endeavoured, even if not successfully, to advance the cause of science he also should find a niche. His medical knowledge evidently prevented him from branching off into the astrology and quackery which the charlatans of his time always connected with a pretended knowledge of Egyptian writing, and it is probable that he was, in a true sense, a scholar.

## THE METROPOLITAN WATER-SUPPLY: SECOND REPORT ON RESEARCH WORK.

AT a meeting of the Metropolitan Water Board on Dec. 4th Dr. A. C. Houston presented his second report on research work made during the 12 months ending July 31st last. It proves that during the past year his laboratory has been occupied by an investigation no less arduous if less conclusive than that embodied in his first report. It will be remembered that therein he described experiments proving that the simple storage of water is an efficient means of freeing it from a very large percentage of typhoid bacilli introduced artificially. The present research was undertaken to discover if the typhoid bacillus could be detected in *raw* Thames, Lea, and New River water, which supply nearly the whole of the water under the control of the Metropolitan Board, and the result was negative. The report begins by laying stress upon the significance of bacillus coli contamination in water as pointing to the possibility of typhoid contamination and upon the necessity of interpreting bacteriological findings in the light of local conditions, a point on which we have often laid stress. Our readers are also well aware by this time that the raw London waters are practically diluted sewage, but the truth of this is shown so clearly in a table in the report that we reproduce a part of it. It shows the percentage number of samples in which typical bacillus coli was found during the 12 months ending March, 1908, in the raw London waters.

| — | Negative. | Positive in 1 c.c. or in smaller samples. | Positive in 0·1 c.c. or in smaller samples. |
|---|---|---|---|
| Raw Thames water at Hampton Court ... | 16·8 | 83·2 | 46·8 |
| Raw Lea water at Ponder's End ... ... ... | 9·2 | 90·8 | 46·8 |
| New River water at Hornsey ... ... ... ... | 50·4 | 49·6 | 14·4 |

The raw Lea water was so bad that 10·4 per cent. of 0·01 cubic centimetre samples and 2·4 per cent. of 0·001 cubic centimetre samples gave growths of bacillus coli. Although this

grave alvine pollution exists Dr. Houston in his recent experiments was unable to detect the typhoid bacillus in 29,400 cubic centimetres of these three raw waters in his examination of 52 samples from each source. The total number of bacteria found on gelatin culture was 135,687,500. Of these colonies all but 7329 were more or less coloured and so were excluded from further observation. The colourless colonies, which might possibly have been typhoid bacilli, were sub-cultured by six differential methods and by one or another all were proved not to be Eberth's organism. In 6024 the exclusion was made by Proskauer and Capaldi's No. 2 medium (with inner tube), in one case by their No. 1 modified medium, in 49 by "L.S.D.S. Rebipelagar" medium (with inner tube), and in 1255 by the various gelatin sugar media, to the differential value of which method Dr. Houston bears strong witness. Full details of the experiments are included in an addendum to the report. It is a matter of general knowledge that the isolation of typhoid bacilli from water is a task of great difficulty but Dr. Houston is satisfied as to the negative value of his findings and indeed comments on the comparative ease with which the suspected typhoid bacilli were excluded by simple tests. At the same time, in dealing with waters containing so many colon bacilli we are only justified in concluding that there was no pronounced typhoid epidemic occurring in the communities discharging their sewage into the rivers in question at the time when the samples were taken. Dr. Houston admits that "it would be presumptuous to infer from these observations that the typhoid bacillus is never present in the raw river waters, or to conclude that any relaxation in the processes of purifying the raw waters, by storage and filtration, before delivery to the consumer is justifiable." He proposes to continue the experiments with a much larger volume of raw water, using a special centrifugal apparatus to separate the organisms. The monthly report on the condition of the metropolitan water-supply for September has also been issued in a prompter manner than have many of its predecessors. The Thames was in good condition throughout the month. Bacillus coli was found in 100 cubic centimetre samples of filtered Thames, Lea, and New River water in the percentage proportions of 12·6, 13·7, and 8·4 respectively. The filtered waters (except the Clapton and New River supplies) showed a slight deterioration of quality as judged by the albuminoid nitrogen and oxygen absorbed from permanganate tests. The results were, however, up to the 1907 standard.

## THE "ILLNESSES" OF THE ELEMENTS.

THERE are abundant chemical phenomena indicating that stability can only be a relative term, and the truth is probably that no element is absolutely stable. The discovery of radium has introduced the doctrine of degradation, but whether that be definitely established or not, and radio-energy apart, spontaneous change would appear to be as true of inorganic materials as it is of organised entities. Yellow phosphorus gradually assumes a new complexion if left to the agencies of time, finishing a beautiful dark red. Is this a step in its retrograde movement towards becoming, that is, an element of a lower order? Why, again, does tin crumble to a grey powder if exposed for a long time to the cold. The change is known as "tin plague"; the smooth surface of the metal after an exposure to 16°–45° C. for two years becomes brittle and crystalline. "Tin plague" is even "infectious," for on inoculating other masses of smooth polished tin with small portions of the crystalline metal the "disease" spreads, the area affected increasing in diameter from three to five millimetres daily. Tinfoil succumbs to the infection in the same way and becomes crystalline and brittle right through. Why, again, does the railway line snap except that it is attacked by the same "crystallising disease"? It would even appear that certain metals have their "illnesses," as though their activities were interfered with by a toxic process which may be pushed in many cases to such an extent that the metal "dies." Platinum, for example, in its colloidal form, in which it is very remarkably active, is positively "poisoned" by prussic acid or corrosive sublimate, and its great energies cease to act: it is killed. The beautiful liquid lustrous metal mercury gets "sick," non-mobile, dull, and streaky the moment that it absorbs impurities. Under electrical stress glass gets "fatigued," as in the x ray tube. Silver "spits" just as it solidifies, having breathed in, so to speak, oxygen while it was in the liquid state. These incidents, and others which might be recalled, are almost startlingly human in their nature.

## INFANTILE MORTALITY IN STAFFORDSHIRE.

THE recently issued quarterly return of the Registrar-General relating to the three months ending with September last again records exceptionally high rates of infantile mortality in many of the urban districts of Staffordshire, more especially in the Pottery districts. The deaths of infants under one year of age during last summer quarter were equal to 177 per 1000 registered births in Hanley, 178 in Oldbury, 208 in Longton, 242 in Tunstall, and 288 in Burslem. In the 76 largest English towns during these three months the mean rate of infantile mortality did not exceed 145 per 1000; and in view of the following low rates that prevailed in other industrial towns—79 in Portsmouth, 85 in Halifax, 90 in Norwich, and 95 in Northampton—the waste of infant life in the above-mentioned Staffordshire towns stands out in striking contrast and gives additional interest to the remarks of Dr. George Reid, the medical officer of health of Staffordshire, in his last annual report for 1907. He therein points out that the rate of infantile mortality during last year exceeded 170 per 1000 in five urban districts in Staffordshire, Longton, Bilston, Brierley Hill, Darlaston, and Tunstall. While it is satisfactory to find that the rate in each of these five towns in 1907 showed a considerable decline from the rates that prevailed in recent years, Dr. Reid expresses doubt as to what proportion, if any, of this decline may justifiably be attributed to improved hygienic conditions or increased maternal care, having regard to the unquestionably powerful influence of the relatively low summer and autumn temperature that prevailed during 1907. With regard to the rate of infantile mortality in Longton, from information collected by the local lady sanitary inspector, Dr. Reid reports that the rate of mortality among wholly breast-fed infants during the year did not exceed 111 per 1000, while it was 147 among those partly breast-fed, and was no less than 442 per 1000 among nearly 200 infants entirely fed on artificial food. Dr. Reid has long maintained that the industrial employment of married women is one of the most potent factors in the causation of infantile mortality. He shows in his recently issued report that in eight Staffordshire towns, containing under 6 per cent. of married or widowed women out-workers, the rate of infantile mortality last year did not exceed 143 per 1000, while in 13 towns in which the proportion of women so employed ranged between 6 and 12 per cent. the mean rate was 154, and in five other towns in which more than 12 per cent. of the married or widowed women are engaged in work away from home the deaths of infants aged under one year were equal to 188 per 1000 births. These figures appear to support the asserted intimate relation between the proportion of married women employed away from home and excessive rates of infantile mortality. Dr. Reid's report, moreover, suggests that the recent decline in the still excessive rates of infantile mortality among the urban population of Staffordshire may in part be

attributed to efficient inspection and control of midwives within the county and to the indirect and instructional influence thus brought to bear upon mothers resulting in the more judicious treatment of young infants.

## THE DWELLINGS OF THE POOR.

THE report of the Mansion House Council on the Dwellings of the Poor for the year ending June, 1908, states that the total number of inspections made during the 12 months covered by the report was 2642, dealing with 1415 houses. The remedied cases were 459. A notable feature of the report is the statement that the activity of health societies in London is steadily increasing and that the existing societies, which are adding to their numbers, have formed a central representative council to consider (1) the possibility of securing some uniform method for the notification of phthisis by the London hospitals and dispensaries; and (2) how to secure the best results for the provisions of the Education Act, 1907, as to medical inspection of children in elementary schools. With the object of assisting the health societies in this matter the executive committee of the council has appointed Dr. A. H. Hogarth and Dr. C. Singer to help the health societies in the realisation of their programme. It is regrettable that a society which does such good work should be hampered by want of funds. The subscriptions for 1907–08 amounted to only £133, while £800 a year is necessary to enable the council to carry out fully the objects for which it exists and for which it has worked for 24 years. To meet liabilities the council has had to sell out the remaining £350 of a legacy of £1000 which it received under the will of the late Miss Flora Goldsmid. The offices of the council, of which the Lord Mayor is President, are at 31, Imperial-buildings, Ludgate-circus, E.C. The Union of London and Smith's Bank, Limited, are the bankers. Any influence which medical men may have to direct subscriptions has now so many legitimate directions that it seems idle to suggest another, but the Mansion House Council on the Dwellings of the Poor does a splendid work with a distinct medical bearing.

## A SHAKESPEARE COMMEMORATION FOR LONDON.

WE have received from Dr. R. W. Leftwich an abridged form of an article bearing the above heading which appeared in the *Westminster Review* for June. In it Dr. Leftwich pleads for some commemoration ceremony to be held in London as a means of emphasising Shakespeare's connexion with the City. We learn that it has been decided by the Chapter of Southwark Cathedral to hold a Shakespeare Commemoration service on April 23rd. The choice of day is peculiarly fitting, for it is, as every Englishman should know, St. George's Day, and if ever there was a poet who thought imperially it was Shakespeare. Moreover, on that date Shakespeare died and it, or April 22nd, was his birthday. Nor is the building less fitting the occasion. Southwark Cathedral, formerly St. Marie Overie, is close to the site of the old Globe Theatre which belonged in part to Shakespeare. In the church are buried Gower, Dyer, Fletcher, and Massinger. From our own point of view the old priory of St. Marie Overie is of interest, for it was served by Augustinian canons, which body also served the great hospital and priory of St. Bartholomew. Shakespeare, too, showed a wonderful knowledge of medicine and surgery, a point which was well brought out quite recently in a book, "The Medical and Surgical Knowledge of William Shakespeare," by Dr. John W. Wainwright, reviewed in these columns on April 18th. We gather that it is owing to Dr. Leftwich's suggestion that the determination to hold the service has been taken and we see that he is the honorary secretary of the movement. May we be permitted to suggest that the music used at the service shall, so far as is possible, be that of about Shakespeare's time? The music of the reign of Elizabeth and her successor was the golden age of English music, and one of the most beautiful anthems of the sixteenth century is attributed to Henry VIII. If the service is held in the evening no more fitting anthem could be used than this.

## WHAT IS CHAMPAGNE?

STEPS have recently been taken, it is reported, to restrict the application of the word "champagne" to wines *produced* in certain districts. It is stated that wines have been imported into these districts and kept there for a while and then sent out marked as genuine champagne wine, a practice which was obviously unfair to the Champagne growers. The districts include the greater part of the Marne, as well as Chateau Thierry and Soissons. The movement, we think, is a right one, and we should like to see the principle of it extended to other wine-producing departments. At the same time, the fact need not be overlooked that champagne is not the only excellent and wholesome sparkling wine produced in France. Quite good sparkling wines are made in Saumur and in the Medoc district, and there is nothing to be said against them so long as they are honestly described.

## THE CHEMICAL COMPOSITION OF HUMAN TEETH COMPARED WITH THOSE OF THE DOG.

THAT the teeth of animals offer a greater resistance to pathological influences than is the case with human teeth is a generally accepted fact for which various causes have been assigned. The length of life of the individual must necessarily be considered in making a comparison, for it is obvious that the teeth of a full-grown person have been subjected to destructive influences for about 20 years more than those of a full-grown dog. The nature of the food also plays an important part. Some further light has been thrown on the subject by M. Th. Gassmann, who has made a chemical analysis of human and dogs' teeth in order to ascertain whether there is any considerable difference in their composition. The results (which are recorded in the *Zeitschrift für Physiologische Chemie*, 1908, vol. lv., p. 455) are given in percentages in the following table.

| — | Human teeth. | | | | Dogs' teeth. |
|---|---|---|---|---|---|
| | Canines. | Milk teeth. | Third molars. | Teeth of aged persons. | |
| Water ... ... ... | 8·09 | 3·76 | 6·91 | 8·17 | 10·97 |
| Loss on calcination ... ... ... | 22·20 | 22·84 | 18·33 | 21·42 | 25·99 |
| Lime ... ... ... | 29·78 | 29·59 | 31·65 | 30·25 | 27·33 |

These figures show that human teeth contain more lime than those of the dog, and the third molars which are richest in lime, contain nearly 5 per cent. more than is present in dogs' teeth. The loss due to calcination affords an approximate indication of the amount of organic matter present. It will be noticed that whereas dogs' teeth are the richest in organic matter human third molars are poorest in that respect. The quantity of phosphoric acid is proportional to the lime present. Human teeth are richest in chlorine and the salts of potassium, whereas in dogs' teeth the salts of sodium predominate. It is noteworthy that the third molars, which are the most prone to decay, are relatively rich in lime and poor in organic matter. M. Gassmann draws

the conclusion that there is a relation between the tendency to decay and chemical composition, the teeth most closely resembling human third molars being the least resistant to decay.

## THE KING'S HEALTH.

As there have been disquieting rumours abroad we are glad to announce on the best authority that the health of His Majesty the King gives no cause for anxiety. When His Majesty left Windsor on Nov. 23rd he had a slight cold. He proceeded from Windsor to Castle Rising and thence in a few days to Sandringham. On arriving at Sandringham he showed symptoms of influenza and it was thought prudent that he should keep his room, only leaving it for his meals. On the third day he developed neuralgia with slight fluctuation of temperature. The condition improved under treatment, and as a change of air to the seaside was thought advisable His Majesty proceeded to Brighton on Dec. 8th. Up to the present he has derived decided benefit from the change.

## FALSE PRETENCES AND FOODSTUFFS.

IN a note in these columns on May 16th last upon the way in which certain benches of magistrates in Sussex dealt with cases of food adulteration that were brought before them it was suggested that the justices should look upon these cases as charges of obtaining money by false pretences. At Eastbourne proceedings were taken on Dec. 4th against a St. Leonards man for obtaining money by false pretences by means of the sale of "butter" which was found to consist of 50 per cent. of butter and 50 per cent. of margarine, and for attempting to obtain money by false pretences in a like manner on another occasion. The evidence in both cases was very similar, but the justices did not see their way clear to convict on the first summons but fined the defendant £5 inclusive of costs on the second summons—that of "attempting to obtain." As a rule, cases of this kind are based on Clause 6 of the Sale of Food and Drugs Act, 1875, the vendor being proceeded against for selling to the purchaser an article of food which was not of the nature, substance, and quality demanded. Although this carries with it a maximum penalty of £20 it does not provide for imprisonment and persons proceeded against under another Act will, perhaps, find that the mere payment of a fine—as a rule, a very small one to one who, perhaps, for a long time has been carrying on a very lucrative business—will not suffice. Nothing disparaging is meant to the Sale of Food and Drugs Act which is one of the finest Acts of Parliament ever placed upon the statute book, but unfortunately justices so often give alleged offenders the benefit of the slightest doubt that may arise in a case, or the defendant goes away scot-free on some technicality which may be raised by the defending solicitor on one or another of the four sub-sections of that well-known Clause 6. Exemplary punishment must be meted out to those individuals who not only palm off foodstuffs which are not of the nature, substance, and quality demanded, but are thereby breaking the law and doing a grave injustice to the genuine and honest trader who finds it very difficult in these days of keen competition at home and from abroad to make both ends meet.

WE regret to announce the death of Professor Rindfleisch, the well-known German pathologist, who, succeeding his master, Virchow, in the appointment, occupied the chair of pathology at Würzburg for over 30 years.

THE profession has also to lament the death of Dr. Charles E. Beevor, the well-known neurologist, who died on Dec. 5th quite unexpectedly. We shall publish an obituary notice of Dr. Beevor in an early issue.

## ROYAL SOCIETY OF MEDICINE.

DEBATE ON HEREDITY, WITH SPECIAL REFERENCE TO CANCER, TUBERCULOSIS, AND DISEASE OF THE NERVOUS SYSTEM.—(*Concluded from p. 1702.*)

Mr. G. P. MUDGE (London Hospital Medical College) said that one point which he wished to emphasise was the following. Sooner or later he supposed circumstances would compel medical men to approach the serious study of human inheritance. When they did so the first question which they must necessarily put to themselves would be, Which method would they employ? At present there were two schools of thought and two methods before the profession. One of those methods would be employed and the other would be inevitably rejected. The one school, that with which he did not agree, was the ancestrial or biometrical, and the other was the Mendelian. The first of those schools largely based their methods and their results upon the conception of continuous variations, they believed that new species arose by the piling up in successive generations of what was termed continued or fluctuating variations, and throughout the whole of biometric literature that had been emphasised, especially in Professor Karl Pearson's work on the Shirley poppies. The Mendelian school, on the other hand, took another standpoint. They did not refuse to recognise that fluctuating variations existed or that they played a certain part in the phenomena of living organisms, but they did not think that to any great degree those variations had taken part in the evolution of species. They contended that the evidence justified them in believing that species had evolved by the sudden origin of new characters. There was an idea abroad that necessarily those mutations or sports or large variations must be variations of large moment. That was not the Mendelian attitude: a mutation might be of quite small moment. Their point was that a mutation was a change which once having arisen would breed true. Continuous variations, on the other hand, did not breed true. The attitude of biometricians was emphasised by Professor Pearson when he said what was wanted was more pedigrees. Evidence of masses was the *sine quâ non* of the biometrician. He proposed to show how far the methods of the biometricians had succeeded and how far they had failed. On the other hand, the Mendelian did not care very much for masses, but he did care that he should have individual cases carefully studied and rigorously analysed. Having obtained a large number of analytical results they could deal trustworthily with the masses which were thus obtained. It was well to consider what the two schools had done. The biometrical school had been in existence for a long time, but the Mendelian school counted its birth from seven or eight years ago. Already the Mendelians had practically revolutionised agriculture and cattle breeding. With regard particularly to one case, wheat, the agriculturists sought to obtain a wheat which should have resistance to rust, which should have large ears and would ripen early. It was the great desire of agriculturists to get all those characters combined in one plant. Until the Mendelian came it was not possible to get that, but Mendelism had managed to get it, yet biometricians had been dealing with their mass results for years. Was there anything which the biometricians had done which justified the medical man in a single subject advising his patient as to what he should do? He believed Professor Pearson would not be able to produce a single instance which would justify a definite recommendation to his patient. But with regard to such a condition as brachydactylia the medical man could recommend a certain course in order to get rid of the abnormality. There was always a certain danger in making too confident a statement, but from the evidence one felt justified in predicting that the whole of the offspring from the union of a normal with an abnormal would be without the abnormality, and that when the condition had once disappeared it would never appear again. The validity of the judgment which Professor Pearson expressed concerning the series of albinos which was instanced depended wholly upon geographical circumstances and considerations. Albinos were fairly common in Scotland, compared with the frequency in other countries such as Norway, and the cases

instanced occurred in Glasgow, which was a natural city to which they would gravitate. So that Glasgow could be regarded as a favourable city for receiving those people who were carrying albinism as a recessive. The case quoted by Professor Pearson was not at all improbable from the Mendelian point of view—in fact, Mendelism would account for it quite well. With regard to the degrees of albinism, to which Professor Pearson had referred, he asked whether that gentleman regarded it as a case of continued variation, that the albino was merely the last stage in a graduated series of reductions of pigmentation. Or did that represent mutations? Professor Pearson must adopt one of those views. If he adopted the mutational conception the Mendelian school was to be congratulated upon a convert. He (Mr. Mudge) defined an albino as an organism in which there is complete absence of pigmentation other than the blood and bile pigments—in other words, it was an organism in which all the epiblastic pigmentation was absent. He did not know why Professor Pearson emphasised the existence of all grades. It was necessary to nail one's colours to the mast. A Mendelian was prepared to say that an albino came out of a wholly pigmented animal as a sudden sport or mutation and that it did not pass through those stages at all. The biometrical position was based on the assumption that those stages were stages which that organism, the complete albino, had passed through in the course of development. With regard to partial albinism, the Mendelians did not regard those so-called partial cases as albinos at all; they were not so in any sense; they were simply individuals in whom the amount of pigment had been reduced. There were certain biological considerations which he did not think Professor Pearson had given great prominence to with regard to human albinos—namely, the late development of certain characters. In rats, mice, guinea-pigs, moles, &c., when they were born they were born in an incomplete condition with regard to pigmentation; their eyes were black but their hair contained no pigment, and their skin was pigmentless. If those animals failed to develop pigment in their skin in later life they would have grown up albinos, they would not be partial albinos, and in that case there was something not albinotic but pathological. Very many human babies when born had blue eyes and fair hair. He had been trying to find out whether all babies were of that nature when born, but medical men seemed uncertain about their answer. If those babies born with blue eyes and fair hair stopped short at that stage they would be albinos; the organism would not be a partially pigmented one but would be an instance of arrest of development. That seemed to be the case in regard to nearly all the intermediate grades of albinism in man. It was known that when the so-called partial albinos were born they were very much less pigmented than they afterwards became; they later developed a little pigment but never became normal in that respect, except in one or two cases where an approach to normality was reached. But those cases could not be looked upon as stable products—they were not albinos; later they developed more pigment in the choroid and iris and there was more colour in the hair. Moreover, such conditions might be pathological and might be due to an arrest of development. Another thing which they might be was a variation or mutation *per se*. There was no evidence in man that that partial albinism had arisen as a mutation, but in the lower forms of animal life some remarkable cases were known, including the case of the flower which Professor Bateson pointed out many years ago at a meeting of the British Association, and what related to the flower related also to man. In connexion with the various grades of colour as they were recorded, in the pea flower from crimson to white, the history of the series showed that the white appeared before the other members of the series, which discounted any idea that they were a gradual progression. Mendelians took their stand on the mutational platform and biometricians on the continuous piling up of small fluctuations. Mr. Mudge instanced parallel cases in regard to the hair of sheep, and such instances, he said, would enable the medical men present to recall cases of hare-lip and microcephalic idiocy, club-foot, and alkaptonuria. The stand which the Mendelian took in regard to all those matters was one which was of very great interest to the medical man. Mr. Mudge next proceeded to show that all tabby cats in London could be placed into one of two groups: one in which there was one line running down the middle of the back and the stripes passed off vertically outwards over the side. In the other class there were three longitudinal stripes and the branching lines were arranged obliquely with a peculiar terminal curve. It was for Professor Pearson and his friends to find out an intermediate stage between those two. The point of interest was that those tabby cats had bred generation after generation, probably back to the sixteenth century, yet they were as distinct to-day as at the earliest known time. They afforded clear evidence of the existence of mutation in nature. And an even more important fact was that here was a clear segregation. Brachydactylia was another mutation, and that mutation behaved entirely on the Mendelian fashion. Dr. Drinkwater had shown that perfectly clear recessives might separate out and give one half normal and one half abnormal in their progeny. The value of the biometrical idea could be judged by an appeal to the results. Professor Pearson said that the albino pedigrees failed utterly to support Mendelism, and similar statements had previously been heard from Professor Pearson, in support of which he quoted from p. 213 of the article on colour in man in the *Biometrika*, Vol. II. There Professor Pearson said: "No single colour breeds true to itself, nor do we find that two black-eyed human beings, nor two blue-eyed human beings mated together give any sign of the dominance of one or other of these extremes." And then towards the end of the article Professor Pearson gave what was supposed to be the sting of it: "That nothing corresponding to Mendel's principles appeared in the characters for eye-colour in man." It so happened that eye-colour in man had been subsequently investigated in England by Hirst and in America by Davenport. The former investigation was conducted in a Leicestershire village and disproved the assertion of Professor Pearson as completely as possible. The inquiry showed that the dominant character when mated bred true. Mr. Mudge exhibited tables showing the results of various forms of mating. A further investigation had been made with regard to the colour of the coats and eyes of horses. Professor Pearson said: "It is the same with every coat colour taken, its relative constancy depends largely on the extent to which it has appeared in the ancestry, and one by one black, bay, chestnut, grey must be dismissed by the Mendelian as neither recessive nor dominant, but as marking permanent and incorrigible mongrels." "It is just worth reiterating," Professor Pearson said, "that nothing corresponding to Mendel's principles appears in eye and coat colour for horses, dogs, and men." But once more an appeal to facts showed that that statement was incorrect. Careful notes were taken of the particulars of 1104 cases of chestnut foals which had been produced from chestnut parents, but it was only fair to say that there were nine exceptions. When those exceptions were carefully examined it was found that they were due to want of care in the pedigrees which had been kept by the horses' breeders, because it was admitted by the breeders that they altered their records, both in the *Racing Calendar* and in the "Stud Book." But even then there were only nine exceptions out of 1104. Professor Pearson wanted the meeting to believe that his biometrical methods were accurate and definite, but he asked his hearers to look at Professor Pearson's "Grammar of Science," pp. 437, 446, 451, 458, 461, where hypothesis upon hypothesis was stated and interwoven with the fabric of his work. One had to recall the heated controversy between Professor Pearson and Professor Kapteyn, showing that it was imperative to wait yet a little while before trusting material collected to the methods of biometricians.

Professor KARL PEARSON, in a rejoinder to Mr. Mudge's criticisms, said that he could only accept the challenge and carry the war into the enemy's camp. Biometry was neither Mendelism nor any other form of "ism"; it was an attempt to apply exact statistical methods to any statistics at all. And his complaint about the Mendelian school was that in nine cases out of ten its followers had not the elementary knowledge of how to deal with numbers. This he illustrated by several examples. With regard to albinism, his point was that without a post-mortem examination the exact colour and position of the pigment in an eye could not be discovered. In the few cases of eyes of supposed albinos pigment was found to be present in the eye. Professor Pearson exhibited on the screen by means of the epidiascope a number of slides of men of varying colour and of hair of varying colour. It was only by massing up the material and getting a very large number of pedigrees that any idea could be formed of the frequency with which exceptions

occurred, and therefore the proper general idea of the subject obtained. Mr. Mudge had been good enough to give a definition of an albino, and that test could only be applied in the post-mortem room. With regard to the tabby cats of London, of which Mr. Mudge had made a good deal, he asked that in every case dealt with exact numbers should be given. He reminded the meeting that when he spoke last he said nothing about his own pedigrees—he had now 800 of them collected; but he did say that the only definite evidence of albinism at present was from Norway and Sweden, and that Professor Bateson's cases told absolutely against the Mendelian point of view. He had not time to reply fully to Mr. Mudge's points, but he wished to suggest that there was a good deal more to be said about the subject than had yet been heard and upon more than one side.

Dr. W. BULLOCH said he knew very little about Mendelism or about Pearsonism, but he had been engaged in collecting for a number of years pedigrees which had been published of diseases in human beings, and he believed that he had as complete a collection as had ever been brought together, and he had handed it to Professor Pearson in connexion with his new treasury of human inheritance which that gentleman was bringing out and which should receive the support of all the members of the medical profession. Of all the pedigrees which had been incorporated into hospital notes and which had been published there were, perhaps, not more than ten, certainly not 20, which were complete and of great value. He illustrated the great difficulty which he had experienced in getting accurate data for pedigrees. He emphasised the need for pedigrees which were published being as complete as possible.

Mr. N. BISHOP HARMAN showed a series of slides and pedigrees of Lamellar Cataract by Means of the Epidiascope, and a series to illustrate the perpetuation through successive generations of a white forelock and white patch of skin spreading down the centre of the forehead.

Sir WILLIAM S. CHURCH (the President), in winding up the discussion, reiterated his assertion that the subject was inexhaustible and declared his belief that the discussion on it had been extremely interesting and somewhat profitable. There had been some wandering from the topic of the connexion there might be between heredity and disease. For instance, on the present occasion the discussion had been rather upon the heredity of colour and of form. He thought that he could very well congratulate the society on their first discussion since it had become the Royal Society of Medicine.

### PROFESSOR KARL PEARSON AND THE LANCET.

In THE LANCET last week (p. 1708) we published a letter from Professor Karl Pearson repudiating entirely our report of his speech made at the debate on Heredity at the Royal Society of Medicine on Nov. 18th as inaccurate, and as having been "actually modified by some one with a totally different vocabulary before publication." But two persons, one an important participator in the debate, having told us that the report was substantially accurate we decided to compare our reporter's version in the places where Professor Karl Pearson repudiated him with the official version of the Royal Society of Medicine, as it was taken down, and with Professor Karl Pearson's version given in his letter as proof of the incapacity and insincerity of our report. We find our reporter's version tallies well with the version placed at our disposal by the Royal Society of Medicine, while both versions differ from what Professor Karl Pearson says that he said.

| *Our Reporter's Version.* | *The Society's Version.* | *Professor Pearson's Version.* |
|---|---|---|
| 1. All would agree about Dr. Mercier's remarks concerning mutations. His own view was that there was no truth in Mendelism at all. | 1. He (Dr. Mercier) starts with an idea about mutation, which we all agree about, and that Mendelism has been true for something or other. My own standpoint is that there is no proof of Mendelism at all. | 1. "Not all would agree with Dr. Mercier's remarks, &c., and that so far the truth of Mendelism has not been demonstrated for any one character." |
| 2. I feared Mendelism of every form collapsed. | 2. The principles required by Mendelism failed utterly. | 2. I feared Mendelism and every theory hitherto proposed of heredity collapsed. |

Professor Karl Pearson has impeached our accuracy, relying for the proof of his charge upon the version of his words to be published in the report of the Royal Society of Medicine. We suggest, in imitation, his own pleasant suggestion, that his words in that report will be "modified by some one with a totally different vocabulary before publication"—i.e., that having altered his words before publication in the report of the Royal Society of Medicine, he has brought a charge of inaccuracy against us because our version does not tally with what is going to appear in that report. If he has done this it seems to us a funny thing for a student of the exact truth to do.—ED. L.

# Public Health.

### ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

*County Borough of Newport (Mon.).*—Dr. J. Howard-Jones calls attention to the difficulty which obtains at the present time in securing a really trustworthy local death-rate. As he points out, it is relatively easy to exclude from the local rates the deaths of persons dying within the district but who are not properly resident therein, but there is no proper organisation for including in the local death-rate the deaths of residents dying outside the district. He adds that during the last ten years he has only received information of the deaths of one Newportonian occurring in infirmaries and other institutions outside the town, a fact which, with a population of over 75,585, is sufficient to indicate that the present method of assessing local death-rates is incorrect and misleading. The voluntary notification of pulmonary tuberculosis has been in operation in Newport since 1893 and 110 cases have been notified since then. Of these 37 were alive in the borough on Dec. 31st, 1907. There were 85 deaths from this disease in Newport during 1907 and of these 23 had been notified—1 in 1905, 11 in 1906, and 11 in 1907. A block for the treatment of this disease has been recently erected at the isolation hospital. A female health visitor was appointed in 1902 and her duties comprise in the main visits to houses invaded by diseases such as whooping-cough, measles, and pulmonary tuberculosis. The water-supply of this important town does not appear to be altogether what it should be and mechanical filters have been fixed in the course of the mains from the reservoirs, a step which has had the effect of improving the appearance of the water. But it is added that all the supplies are from flood water sources and each one is liable to contamination from dwellings. The fishy smell which was complained of in connexion with the water from two of the reservoirs in 1905 when the water was treated with copper sulphate has not since recurred.

*City of Chester.*—The birth-rate of this city, with an estimated population of 39,420, has fallen more or less steadily since 1877, when it was 34·3 per 1000, to 24·7 in 1907, which was the lowest rate on record. There were in that year 1015 deaths and of these 40 were illegitimate. 15 births occurred in the workhouse and of these 11 were the illegitimate children of domestic servants. Dr. A. E. Thomas reports that the number of premature births in Chester is high and suggests the suspicion that the induction of premature delivery may be a deliberate act. The midwives of the city, on the whole, do their work "remarkably well; their bags of appliances are well-found, and their case books well kept. None are illiterate; though in many towns the opposite too often obtains." There were no deaths from puerperal fever during 1907. The recorded death-rate for 1907 was 16·5 per 1000, a higher rate than that which prevailed in the 76 great towns or in the 142 smaller towns. In discussing the diminished prevalence and fatality-rate of scarlet fever in Chester, Dr. Thomas asks how far the isolation hospital has contributed to this result. Wisely, however, he leaves his problem unsolved, merely indicating that he possesses an accurate general conception of the difficulties of the position. There can be little doubt that those institutions when properly constructed and properly administered are of material value, but no one who has studied the question in its broader aspects and who possesses in the least degree the mind of an epidemiologist would venture to assess statistically the precise value of these useful institutions. The town council of Chester is, we are glad to see, concerning itself with alcoholism as a public health factor and it has issued in the form of a placard the conclusions relating

thereto which were arrived at by the Committee on Physical Deterioration. By way of enforcing these conclusions the town council quotes the experience of Sir Frederick Treves as set forth in his account of the relief of Ladysmith: "In that column of 30,000 men the first who dropped out were not the tall men or the short ones or the big men or the little ones but the drinkers, and they dropped out as clearly as if they had been labelled with a big letter on their back." In the matter of pulmonary tuberculosis, a disease which is voluntarily notifiable, Dr. Thomas hopes that it may be feasible later to utilise a part of the small-pox hospital as a sanatorium. Good work appears to be done in Chester in the direction of food control, more particularly perhaps as regards milk. We note, for instance, that seven samples of milk were taken from refreshment rooms and that in two instances the deprivation of the milk from cream amounted to 67·3 and 26 per cent. respectively. It is satisfactory to notice, too, that prosecutions have been undertaken when the milk was found contaminated with filth, a substance which does not receive specific attention in the Public Health Act, 1875. There were six prosecutions for filthy milk, and in one case 1·09 grains of filth per gallon cost the milk vendor 44*s*. We regard this work of Chester as of great public utility. The water-supply of Chester is, we gather from the report, derived from the river Dee, and 200 samples were examined bacteriologically by the medical officer of health during 1907. On gelatine count the crude river water was found to contain from 550 to 52,800 colonies, the average being about 1500 to 2500. At periods of flood or at high tide the number was much greater and this reference to high tide seems to suggest that the intake is in some way or other within the sphere of tidal influence. In samples taken from the filtered water the gelatine counts ranged from 0·38, a fact which, as Dr. Thomas says, indicates the efficiency of the filtering process. Bacillus coli seems practically absent from the filtered river water. But Dr. Thomas is evidently uneasy, because there is in the filters only a single line of defence, and he quotes the historical instance of cholera at Hamburg and Altona as an illustration of what this single line of defence may mean. If, however, the Chester intakes are as exposed to pollution as were the Hamburg intakes we can well understand the uneasiness of Dr. Thomas, and from his comments we suspect that there may be a certain analogy as regards tidal influence between the two. But the position of the medical officer of health appears to be this. Given adequate storage we may rest assured, on the basis of Dr. A. C. Houston's work on the effect of water storage on pathogenic organisms, that the people of Chester need not lie awake at night with anxiety of water-borne epidemics. All this is very largely true and the history of London itself might be quoted in support of the view, but notwithstanding it a purer source is, we expect, desirable and we note that the council is arranging provisionally with the Birkenhead corporation for a supply from the upper waters of certain tributaries of the Wye.

*County Borough of Wigan.*—Mr. William Berry estimates the population of Wigan at 90,765. The birth-rate for 1907 was 30·5 and the illegitimate birth-rate was 1·37 per 1000 in each case. The infantile mortality reached the very high rate of 163 per 1000 births, but this rate includes 49 infants whose duration of life did not exceed 24 hours. There was no small-pox in the district during the year under review and consequently use was made of the small-pox hospital for the treatment of seven cases of pulmonary tuberculosis; the results were regarded as beneficial. There appears to be some difficulty in regard to obtaining supplies for the isolation hospital and as a result fewer cases were treated than would otherwise have been the case. The report contains no detailed information relating to this strange policy. There were 167 cases with 22 deaths from enteric fever, and personal contact together with privy middens are thought to be responsible for the prevalence of the disease. In the beginning of the year there was an outbreak of ptomaine poisoning caused, it appears, by the consumption of potted tongue, as in every instance tongue had been partaken of, and on bacteriological examination of the tongue the bacillus enteritidis of Gärtner as well as coliform organisms were discovered. Mr. Berry is inclined to attribute the contamination of the tongue to the brine which was used in its preparation, and he makes certain proposals for preventing these food-poisoning outbreaks. It is clear from this outbreak that far greater supervision over the actual preparation of foods is essential.

## VITAL STATISTICS.

### HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 7175 births and 4863 deaths were registered during the week ending Dec. 5th. The annual rate of mortality in these towns, which had been equal to 15·6 per 1000 in each of the two preceding weeks, was again 15·6 in the week under notice. During the first ten weeks of the current quarter the annual death-rate in these towns averaged 14·7 per 1000, and in London the mean rate during the same period did not exceed 14·1. The lowest annual death-rates in these towns last week were 8·0 in King's Norton, 8·4 in Hornsey, 9·0 in West Bromwich, and 9·1 in York and in Smethwick; the rates in the other towns ranged upwards, however, to 23·7 in Middlesbrough, 24·2 in Huddersfield, and 24·5 in Swansea and in Rotherham. In London the death-rate last week was equal to 15·0, against 15·8 in the previous week. The 4863 deaths from all causes in the 76 towns showed an increase of but 16 upon the number in the previous week, and included 368 which were referred to the principal epidemic diseases, showing a further decline of 39 from the numbers in recent weeks; of these 368 deaths, 142 resulted from measles, 70 from diarrhœa, 51 from diphtheria, 38 from "fever" (principally enteric), 38 from scarlet fever, and 29 from whooping-cough, but not one from small-pox. The deaths referred to these epidemic diseases during the week were equal to an annual rate of 1·2 per 1000, against 1·4 and 1·3 in the two preceding weeks; in London the rate from these diseases did not exceed 1·0 per 1000. No death from any of these epidemic diseases was registered last week in Rhondda, Norwich, Southampton, Wolverhampton, Swansea, Northampton, or in six other smaller towns; the annual death-rate therefrom, however, ranged upwards in the other towns to 3·3 per 1000 in Tottenham and in Rotherham, 4·5 in Middlesbrough, and 4·8 in Leicester. The 142 fatal cases of measles in the 76 towns during last week showed a further slight increase upon the numbers returned in recent weeks and exceeded the number registered in any previous week of this year; they caused death-rates equal to 2·2 in Huddersfield, 2·5 in Rotherham, 2·9 in Tottenham, 3·5 in Middlesbrough, and 4·1 in Leicester. The deaths attributed to diarrhœa, which rose to 1134 in the third week of August, have since steadily declined and did not exceed 70 in the week under notice, a lower number than in any week since the end of June. The 51 deaths from diphtheria, showed a decline of 15 from the number in the previous week; they included, however, 20 in London and its suburban districts, and eight in Manchester and Salford. The 38 deaths referred to "fever" also showed a decline from recent weekly numbers, but caused death-rates equal to 1·1 in St. Helens, 1·5 in Grimsby, and 1·9 in Devenport. The 38 fatal cases of scarlet fever, on the other hand, showed an increase upon the low numbers in recent weeks; 18 were recorded in London and its suburban districts, five in Manchester and Salford, and three in Birmingham and Aston Manor. The 29 deaths from whooping-cough were fewer than in any previous week of this year, including, however, two in Wigan, equal to an annual rate of 1·2 per 1000. The number of scarlet fever patients under treatment in the Metropolitan Asylums and the London Fever Hospitals, which had been 3809 and 3831 on the two preceding Saturdays, had declined to 3747 on Saturday, Dec. 5th; the new cases of this disease admitted to these hospitals during the week under notice were 406, against 500, 421, and 495 in the three preceding weeks. The deaths in London referred to pneumonia and other diseases of the respiratory organs, which had been 334 and 318 in the two preceding weeks, further declined during last week to 295, and were 103 below the corrected average number in the corresponding week of the five years 1903–07. The causes of 47, or 1·0 per cent., of the deaths registered last week in the 76 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death during the week were again duly certified in Leeds, Bristol, West Ham,

Newcastle-on-Tyne, Leicester, and in 45 other towns; the 47 uncertified causes of death in the 76 towns included, however, eight in Birmingham, six in Liverpool, four in Sheffield, and three in Preston.

### HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been equal to 17·3 and 16·4 in the two preceding weeks, rose again to 16·5 in the week ending Dec. 5th. During the first ten weeks of the current quarter the annual death-rate in these eight towns averaged 15·1 per 1000, and exceeded by 0·4 the mean rate during the same period in the 76 English towns. Among the eight Scotch towns the death-rate during the week under notice ranged from 11·9 and 13·5 in Perth and Aberdeen, to 20·1 in Dundee and 26·9 in Greenock. The 583 deaths in the eight towns exceeded the number in the previous week by six, and included 53 which were referred to the principal epidemic diseases, against 68, 62, and 57 in the three preceding weeks; of these 53 deaths, 18 resulted from diarrhœa, 14 from whooping-cough, eight from diphtheria, six from scarlet fever, five from measles, and two from "fever," but not one from small-pox. These 53 deaths were equal to an annual rate of 1·5 per 1000, which exceeded by 0·3 the mean rate from the same diseases in the 76 English towns. The deaths attributed to diarrhœa in the eight Scotch towns, which had been 22 and 25 in the two preceding weeks, declined to 18 in the week under notice, and were fewer than in any week since the beginning of July; they included 12 in Glasgow, three in Edinburgh, and two in Dundee. The 14 fatal cases of whooping-cough showed a further slight decline from the numbers in recent weeks; eight were, however, recorded in Glasgow and two both in Dundee and Paisley. Of the eight deaths from diphtheria, an increase of three upon the number in the previous week, four occurred in Glasgow and two in Paisley. The six deaths from scarlet fever included three in Glasgow in which town also occurred four of the five fatal cases of measles. Of the two deaths referred to "fever" one each was returned in Glasgow and Greenock. The deaths referred to diseases of the respiratory organs in the eight towns, which had been 136 and 133 in the two preceding weeks, further declined to 113 in the week under notice, and were 56 below the number returned in these towns in the corresponding week of last year. The causes of 23, or 4·0 per cent., of the deaths registered during the week in the eight towns were not certified; in the 76 English towns during the same week the proportion of uncertified causes of death did not exceed 1·0 per cent.

### HEALTH OF DUBLIN.

The annual rate of mortality in Dublin, which had been equal to 24·2 and 22·2 per 1000 in the two preceding weeks, rose again to 23·8 in the week ending Dec. 5th. During the first ten weeks of the current quarter the death-rate in the city averaged 20·2 per 1000, whereas the mean rate during the same period did not exceed 14·1 in London and 13·7 in Edinburgh. The 180 deaths of Dublin residents during the week under notice showed an increase of 12 upon the number returned in the previous week, and included 12 which were referred to the principal epidemic diseases, against 21 and 11 in the two preceding weeks. These 12 deaths were equal to an annual rate of 1·6 per 1000; the rate from these diseases in the same week did not exceed 1·0 in London and 0·6 in Edinburgh. Of the 12 deaths from these epidemic diseases in Dublin last week, five resulted from measles, three from diarrhœa, two from "fever," and two from whooping-cough, but not one from diphtheria, scarlet fever, or small-pox. The five fatal cases of measles showed a slight further decline from the numbers returned in the two preceding weeks; those of diarrhœa and of "fever" showed, however, an increase. The 180 deaths from all causes during the week included 40 of infants under one year of age and 50 of persons aged upwards of 60 years; the deaths of elderly persons showed a considerable increase upon recent weekly numbers. One inquest case and three deaths from violence were registered during the week, and 58, or 32·2 per cent., of the deaths occurred in public institutions. The causes of two, or 1·1 per cent., of the deaths in Dublin last week were not certified; the proportion of uncertified causes of death in Edinburgh last week was equal to 4·3 per cent., while in London the causes of all but three of the 1383 deaths were duly certified.

## THE SERVICES.

### ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet-Surgeons: D. J. P. McNabb to the *Prince George;* and J. A. Moon to the *Prince of Wales*, on recommissioning. Staff-Surgeons: E. S. Reid to the *Swiftsure;* and P. G. Williams to the *Vivid*. Surgeons: A. R. Fisher to the *Prince George;* and C. V. Griffiths to the *Prince of Wales*, on recommissioning.

### ROYAL ARMY MEDICAL CORPS.

Major Lionel A. Mitchell, from temporary half-pay, to be Major, with precedence next below J. Hennessy (dated Nov. 21st, 1908).

Lieutenant Robert O'Kelly is confirmed in his rank.

Scottish Command, Edinburgh Company: Captain David Waterston resigns his commission (dated March 31st, 1908).

### SPECIAL RESERVE.

South Irish Horse: Surgeon-Captain Frederick Faber MacCabe is transferred to the Special Reserve, retaining his rank and seniority (dated July 7th, 1908).

### TERRITORIAL FORCE.

*Royal Field Artillery.*

5th Staffordshire Battery, 3rd North Midland Brigade: Surgeon-Lieutenant Charles John Caddick resigns his commission as Surgeon-Lieutenant in the 2nd Volunteer Battalion, The South Staffordshire Regiment, and is appointed Captain (dated April 1st, 1908). 13th Lancashire Battery, 3rd Lancashire Brigade: Surgeon-Captain Francis William Bailey, from the 6th Lancashire Royal Garrison Artillery (Volunteers), to be Surgeon-Captain, with precedence as in the Volunteer Force (dated April 1st, 1908). 2nd Wessex (Howitzer) Brigade: Surgeon-Lieutenant Harold Frederic Bassano, from the 2nd Hampshire Royal Garrison Artillery (Volunteers), to be Surgeon-Lieutenant, with precedence as in the Volunteer Force (dated April 1st, 1908). 3rd Wessex Brigade: Surgeon-Lieutenant-Colonel Augustus Kinsey-Morgan, from the 1st Dorsetshire Royal Garrison Artillery (Volunteers), to be Surgeon-Lieutenant-Colonel, with precedence as in the Volunteer Force (dated April 1st, 1908). 4th Wessex Brigade: Surgeon-Lieutenant George Clement Searle, from the 1st Devonshire Royal Garrison Artillery (Volunteers), to be Surgeon-Lieutenant, with precedence as in the Volunteer Force (dated April 1st, 1908).

*Royal Garrison Artillery.*

Dorsetshire: Surgeon-Captain Telford Telford Smith from the 1st Dorsetshire Royal Garrison Artillery (Volunteers), to be Surgeon-Captain, with precedence as in the Volunteer Force (dated April 1st, 1908).

*Infantry.*

7th Battalion, The Duke of Cambridge's Own (Middlesex Regiment): The undermentioned officer from the 1st Volunteer Battalion, is appointed to the battalion, with rank and precedence as in the Volunteer Force (dated April 1st, 1908): Surgeon-Captain George Pester Chappel (to be supernumerary).

*Royal Army Medical Corps.*

Captain Herbert W. Whyte resigns his commission (dated Oct. 27th, 1908). Major Joseph G. Turner resigns his commission (dated Nov. 2nd, 1908).

1st North Midland Field Ambulance: Frederick Russell Bremner to be Lieutenant (dated Oct. 2nd, 1908).

3rd North Midland Field Ambulance: Philip Watson Turnor to be Lieutenant (dated June 12th, 1908).

1st Eastern General Hospital: The undermentioned to be officers whose services will be available on mobilisation (dated May 6th, 1908):—To be Lieutenant-Colonels: Sir Thomas Clifford Allbutt, K.C.B., F.R.S., George Edward Wherry, John Buckley Bradbury, and Frederick Deighton. To be Majors: Laurence Humphry, Arthur Cooke, Ernest Lloyd Jones, Frederick William Burton-Fanning, Hamilton Ashley Ballance, John Aldren Wright, Peverell Smythe

Hichens, and Robert Arthur Milligan. To be Captains: Herbert Henry Brown, John Gutch, John Charles William Graham, George Frederick Rogers, George Secretan Haynes, Benjamin Hugh Nicholson, Walter Malden, and Sydney Walter Curl.

Sanitary Service: Surgeon-Lieutenant-Colonel and Honorary Surgeon-Colonel William Robert Smith, from the 1st City of London Volunteer Rifle Corps, to be Lieutenant-Colonel with the honorary rank of Surgeon-Colonel, with precedence as in the Volunteer Force (dated April 1st, 1908).

*For attachment to Units other than Medical Units.*—Captain and Honorary Major James Robertson Reid (Retired List (Volunteers)) to be Major (dated May 1st, 1908). William James Townsend Barker to be Lieutenant (dated July 27th, 1908). Surgeon-Captain Mark Purcell Mayo Collier, from the East London (Tower Hamlets) Royal Engineers (Volunteers), to be Captain, with precedence as in the Volunteer Force (dated April 1st, 1908). 1st Eastern General Hospital: Surgeon-Major Joseph Griffiths, from The Cambridge University Volunteer Rifle Corps, to be Lieutenant-Colonel (dated May 6th, 1908). Surgeon-Captain Frederick Edward Apthorpe Webb, from the 3rd (Cambridgeshire) Volunteer Battalion, The Suffolk Regiment, to be Major (dated May 6th, 1908).

IMPERIAL YEOMANRY.

2nd County of London (Westminster Dragoons): Second Lieutenant the Honourable Alexander C. Harris resigns his commission (dated March 31st, 1908).

VOLUNTEER CORPS.

*Royal Garrison Artillery (Volunteers)*: 6th Lancashire: The announcements of the resignation of Surgeon-Captain Francis W. Bailey and of his appointment to a Captaincy, which appeared in the *London Gazette* of April 10th, 1908, are cancelled.

*Rifle*: 1st (Hertfordshire) Volunteer Battalion, The Bedfordshire Regiment: The undermentioned officer resigns his commission (dated March 31st, 1908): Surgeon-Captain Henry H. L. Patch.

*Royal Army Medical Corps:* Bedford Bearer Company: Captain Charles H. Perram resigns his commission (dated March 31st, 1908).

The *Army and Navy Gazette* of Dec. 5th, states: "The following movements of army medical officers may be calculated on. Colonel H. R. Whitehead, from India, to be promoted to surgeon-general, and to assume the principal medical officership of the Southern Command, vice Surgeon-General W. S. Pratt, due to retire by age on Jan. 21st. Colonel P. M. Ellis will succeed, on promotion to higher rank, to Surgeon-General W. B. Slaughter's vacancy in India, the latter officer being due to retire by age on the 31st inst. Great credit is due to the office of the Army Medical Service for the heavy work done and doing in carrying out the details of the Territorial scheme, the completion of which may be shortly expected."

# Correspondence.

"Audi alteram partem."

## SYPHILIS IN UGANDA.

*To the Editor of* THE LANCET.

SIR,—On reading the leading article "Syphilis in Uganda" in your issue of Oct. 3rd last I feel bound to express my dissent to some of the data on which it is based. I unfortunately had not the pleasure of meeting Colonel Lambkin in Uganda on his visit to that country as I was then in England on leave, though my brother, Mr. J. Howard Cook, M.S., F.R.C.S., who is associated with me in charge of this hospital, did so. I went back to Uganda almost immediately on Colonel Lambkin's return to England and so missed him again.

During the last 12 years I have repeatedly traversed Uganda from north to south and east to west, visiting also all the surrounding countries—Ankole, Toro (three times), Bunyoro (three times), Busogo (three times), Kavirondo (twice), Acholi Land, and the Southern Sudan. Our mission hospital was founded early in 1897 and has been expanding ever since till for the last two or three years we have had 120 beds. From the first we have kept careful notes and statistics of our in-patients and from 1902 of our out-patients. Turning, then, to our recent figures I find that last year 13,388 separate out-patients attended our mission dispensary. Of this number 1978 were syphilitic, a proportion of 14·8 per cent., bad enough in all conscience, but nothing like the words in your article, "at the present time more than half the population of the Protectorate is infected." I am convinced the proportion of syphilitics is higher here (as Mengo is the native capital) than anywhere else and feel sure that 90 per cent. in Ankole is far too high. It was certainly nothing like that when I was there. If only 14·8 per cent. were infected of those who attended our dispensary the number in the general population is surely much less.

Turning to the in-patients, the number of in-patients admitted to the hospital and of syphilitic in-patients respectively for the last five years are as follows:—

| | Total in-patients. | Syphilitic. |
|---|---|---|
| 1903 ... ... ... ... | 914 ..... | 108 |
| 1904 ... ... ... ... | 1021 ..... | 134 |
| 1905 ... ... ... ... | 1379 ..... | 154 |
| 1906 ... ... ... ... | 1768 ..... | 204 |
| 1907 ... ... ... ... | 1536 ..... | 159 |
| Total ... ... ... | 6618 ..... | 759 |

This works out at only 11·4 per cent., and as we have two wards set apart for the reception of syphilitic cases and draw our patients from a very large area I believe we get the great bulk of the more severely diseased syphilitics in the most densely populated part of the Protectorate. The cases of pregnancy complicated by syphilis, recent or old, is undoubtedly very high. I believe it to be about 25 per cent., but have not yet worked out sufficiently large figures to lead to trustworthy results.

You say "Colonel Lambkin found a prevalent opinion among medical men in the Protectorate that the natives were bad subjects for the administration of mercury, but this view has not been sustained by his own experience." While admitting the great superiority of his intra-muscular method I am bound to say that I fully share the opinion of my medical *confrères*, and though salivation is more uncommon after Colonel Lambkin's treatment we have had several serious cases after its use and a neighbouring medical man has had a death, though he admitted that in that case he had probably used too high a dose. By the mouth our usual dosage is one-eighth of a grain of grey powder twice or thrice daily and many can only stand this with astringent mouth washes for from two to three weeks. A single dose of five grains of calomel is almost sure to salivate. I fear Colonel Lambkin is premature in assuming "that it is possible to count upon even more complete control over the patients in Uganda than in India, the influence of the chief over his people being remarkable." This influence is rapidly dying out and I fear that the hold of the chiefs over their people in such a matter as periodical injections for syphilis would be extremely small.

Finally, I must give emphatic denial to the assumption that Christianity has been the chief cause of this epidemic. It has been all the other way. Read "civilisation" for "Christianity" and there may be some amount of truth in it. Respect for your valuable space forbids me to labour this point, but I venture to assert, Sir, that Christianity from the beginning has acted as a deterring and restraining force and is indeed, when intelligently accepted, the only true prophylaxis to this terrible scourge. In spite of my belief that the infection of Uganda by syphilis has been greatly overstated I feel certain that we owe a debt of gratitude to Colonel Lambkin for his intra-muscular method which we are practising on an ever-increasing scale and which we find is superior to any other remedy in suitably selected cases.

I am, Sir, yours faithfully,

ALBERT R. COOK, M.D., B.Sc. Lond., B.A. Camb.

C.M.S. Hospital, Mengo, Uganda, B.E. Africa, Nov. 3rd, 1908.

## "THE HUMAN WOMAN."

*To the Editor of* THE LANCET.

SIR,—Referring to the interesting leading article on "The Human Woman" in THE LANCET of Nov. 21st, I should like to make a comment on the following sentence: "It may be conceded fairly that medical women of the present day are entering the lists on equal terms with medical men, at least as regards education; it will be interesting to see what proportion of medical women as compared with men 50 years

hence have contributed unmistakeably to the advancement of their science."

It is true that women enter the lists on equal terms with men as regards education, inasmuch as they pass the same examinations, and in some schools they have equal opportunities of working, both in laboratories and in hospitals, with this important exception, that resident students' posts are, as a rule, withheld from them. After they are qualified the handicapping of medical women becomes more apparent, for they are rarely admitted to resident posts at general hospitals and so are debarred from experience and teaching which are of incalculable value, for it is agreed that all specialised training should be preceded by thorough general knowledge. Besides this want of experience, women have few opportunities of becoming familiar with research methods, and of using instruments and apparatus which are beyond the reach of ordinary private individuals, but which are at the service of resident hospital officials. The suggestions and stimulus given by senior physicians and surgeons must be of great value also.

It seems to me improbable that eminent surgeons of the present day would have acquired their remarkable skill if, at the beginning of their careers, they had been unable to obtain constant practice as house surgeons and resident surgical officers; and it seems equally improbable that famous physicians of the present day would have done so much to advance their science if they had been unable to make observations on large numbers of hospital patients. I do not presume to discuss the suitability or unsuitability of women for the medical profession but only wish to point out that they are by no means on equal terms with men as regards continued education after they have passed a qualifying examination.

I am, Sir, yours faithfully,

Dec. 5th. MARY CLARKE.

## STANDARDISATION OF DISINFECTANTS.

*To the Editor of* THE LANCET.

SIR,—May we be permitted to associate ourselves with the view expressed by yourselves in your issue of Dec. 5th? Any movement for the constitution of an independent board of experts for the standardisation of disinfectants would have our undivided support, as the present position is entirely unsatisfactory. Any departure from standard conditions should not be allowable without mature consideration; for instance, the futility of this latest modification suggested by Rideal and Walker will be apparent if comparative tests are made with disinfectants in natural waters, such as have commonly to be used, as compared with distilled water.—Yours faithfully,

NEWTON, CHAMBERS, & CO., LTD.,
(W. NEWTON DREW, Managing Director.)

Thorncliffe, near Sheffield, Dec. 7th, 1908.

## THE CAUSE AND PREVENTION OF DENTAL CARIES.

*To the Editor of* THE LANCET.

SIR,—The editor of the *Dental Surgeon* indicates that I seem "to think that the value of hard and resistant food and general exercise of the jaw muscles as prophylactics against dental caries is a new discovery" and refers to Coleman's "Manual on Dental Surgery and Pathology." What are the views to be found on the pages referred to? The following extracts indicate what they are:—

> One of the chief causes of this degeneracy [of the teeth] we believe to be the change, both in character and mode of preparation, which the food of man has undergone during the last few centuries. Take, for instance, his bread; this, as compared with that of the present day, was imperfectly ground and contained a larger proportion of husk of the grain, and, in consequence, a larger proportion of phosphates. ..... Organs or structures not properly exercised undergo, after it may be many generations, some form of degeneration, and it is only reasonable to conclude that the teeth and jaws follow the same law; the former unprotected losing their power of resisting external agencies. .....

This is a clear statement of one of the theories which I have tried to combat. I have consistently opposed the idea that the teeth are undergoing any degeneracy on account of lack of sufficient use. If the degeneracy theory were correct the hope of regaining perfection in our teeth would only be but a remote one, instead of being within the immediate power of every intelligent parent. Again, the old dietetic theory might lead to distinct and serious error. Thus, for example, fine biscuits, toffee, and bon-bons of various kinds may stimulate mastication and therefore might be supposed to develop and strengthen the teeth so that they would be able to resist external agencies. The truth is, however, in my view, that such foods tend to stick about the teeth and undergo rapid fermentation, so that caries is the inevitable result. Nor did the degeneracy theory in any way suggest one of the most important provisions in the new method of prevention—namely, that the meal should be so arranged that the last part of it should leave the mouth physiologically clean. In other words, that if a meal has included sweets or sticky carbohydrates these should be followed by some detergent food or drink, such as, for example, fresh fruit or a cup of coffee. It is one thing to contend that the refinement and softening of food tend to make it lodge unduly about the teeth and undergo acid fermentation, and quite another to say that this refinement and softening deprive the teeth of their proper share of phosphates and blood for their proper development. I am, Sir, yours faithfully,

Wimpole-street, W., Nov. 29th, 1908. J. SIM WALLACE.

*To the Editor of* THE LANCET.

SIR,—I notice that Dr. R. W. Allen in his interesting paper on the Common Cold gives a prescription for a gargle containing a certain amount of free hydrochloric acid. My attention was drawn to the subject of hydrochloric acid in gargles by the fact that a patient presented herself to me for dental treatment last spring showing a large amount of dental caries, from which heretofore she had been fairly free. I inquired whether she had been taking any medicine, but she said that she had not but had been using a gargle. Upon seeing the prescription I found it was a very similar one to the one mentioned in Dr. Allen's paper.

We know that mineral acids, even when very dilute, have a decalcifying action on the enamel. Furthermore, a gargle if used properly must necessitate the liquid being held in contact with the back teeth for some considerable time, much longer than when medicine is swallowed. It is, therefore, reasonable to suppose that an acid gargle is more injurious to the teeth than an acid draught, while the former cannot be taken through a tube like the latter.

I would suggest that instructions should be given to patients taking any mineral acids into the mouth to rinse the mouth well afterwards, preferably with an alkaline solution. I have seen a similar condition in the mouths of two members of one family who had dosed themselves freely with dilute phosphoric acid as a remedy for colds.

I am, Sir, yours faithfully,
WM. RUSHTON, L.D.S. ENG.

Harley-street, W., Dec. 7th, 1908.

## A SERUM TREATMENT FOR CARCINOMA IN MICE.

*To the Editor of* THE LANCET.

SIR,—It has been represented to me that there are some who think that in my criticism of Mr. C. E. Walker's paper and in my letter published in THE LANCET of Nov. 21st I expressed myself in terms more forcible than was necessary in the circumstances. I am glad, therefore, to take the earliest opportunity of saying that I am sorry if I put forward my views in a manner that could give rise to such a feeling. I should also like to express regret if I have placed Mr. Walker and my colleagues on the council of the Liverpool Medical Institution in a position open to misconstruction by my remark that the former "asked to be invited." I was away from home at the time, but I understand that what happened was that Mr. Walker stated through the secretary that he had some work which he would like to bring before the members of the institution. This communication was considered by the council, as to ways and means, with the result that Mr. Walker was unanimously invited to read his paper at an ordinary meeting, a full discussion being arranged for. I learned this unofficially on my return home.

I had intended not to discuss the subject further, but I feel that I owe it to myself to establish my good faith in the scientific aspect of the matter under discussion. There is, however, only one point left which requires elucidation, and

this, like so many controversial matters, has not been made clear through a certain misunderstanding. All the other points I dealt with in my last letter (Nov. 14th) and there is no need to refer to them again. The point I allude to is in regard to the work of Borrel and Bridré. I stated, as I think Mr. Walker correctly quotes, that though there was a difference in technique between his work and theirs in regard to testis preparations, there was no essential difference in the principles involved or in the means by which it was hoped a result might be obtained. Let me make myself clear upon this point, for I have not done so as yet, since it appeared to me that Mr. Walker's results were as negative—in so far as a cure was concerned—as were those of Borrel and Bridré. But even disregarding this important fact I believe I am justified in considering that there is no essential difference between immunity produced by a vaccine (which was essentially what the testis preparation used by Borrel and Bridré appears to have been) and a serum immunised to testis (as carried out by Mr. Walker). This, of course, would not apply to ordinary somatic cells, but certainly should to those out of coördination—as those of the testis have been shown to be—if Mr. Walker's views were to have any application.

I made in the hasty abstract of my remarks a slip, which Mr. Walker refers to, in calling Borrel and Bridré's preparation "testis serum." I did not make this mistake in my speech nor in my subsequent letter. It was a clerical slip and nothing more, for I was well aware of the nature of the work done, as was evident in my spoken remarks when I classed and compared the testis preparation with that made from liver, spleen, and fœtal tissues. I hope I have made this final point clear, as I have no wish to clothe any of my remarks in ambiguity.

In conclusion, I trust that if my comments should have caused any unpleasantness my arguments will not have suffered from the inference that I was manufacturing a case. A careful perusal of my arguments will show that this is not so. I also wish to make it quite clear that I hold to all that I have said in regard to the scientific value of the work brought forward.

I am, Sir, yours faithfully,

Liverpool, Nov. 30th, 1908. W. BLAIR BELL.

## THE STERILISATION OF POTABLE WATERS BY MEANS OF CALCIUM HYPOCHLORITE.

*To the Editor of* THE LANCET.

SIR,—May I be allowed to say that it was hardly necessary for my friend Dr. Thresh to have gone to America to learn that chlorine is an economic and efficient agent for the purification of polluted drinking waters, as for the last three years I have had under observation at Guildford, Surrey, a method of sterilisation by chlorine which has already been referred to in the literature on the subject, and by Mr. Phelps and his colleagues in their papers published in America last year. The Royal Commission on Sewage has since then found at Guildford that a small quantity of a liquid containing available chlorine could render septic tank liquids inoffensive and that if more than sufficient to remove smell and kill "coli" was added it did not prejudice the purifying ability of filters.

Dr. Thresh omits to state in his interesting paper advocating the use of calcium hypochlorite that Phelps and Carpenter as a result of their work at the Massachusetts station consider that electrolytic chlorine is cheaper and probably more efficient than chloride of lime for the practical sterilisation of impure waters and effluents. As the subject is to be discussed at a meeting of the Royal Sanitary Institute on Wednesday, Jan. 13th next, I will not trouble your readers with any further details except the following quotations from Messrs. Phelps and Carpenter's paper in the *Technology Quarterly* of the Sanitary Research Laboratory of the Massachusetts Institute of Technology:—

> The use of gaseous chlorine, manufactured at the disposal works by electrolytic methods, would in the case of larger works considerably reduce this cost.
>
> The process as thus outlined is entirely feasible, and in the case of large works it is cheaper than sand filtration.

I am, Sir, yours faithfully,

SAMUEL RIDEAL.

Victoria-street, Westminster, London, S.W., Dec. 3rd, 1908.

## THE PROPOSED EASTBOURNE CENSUS.

*To the Editor of* THE LANCET.

SIR,—The attention of the town council of Eastbourne has been called to the annotation on p. 1698 of the current issue of THE LANCET, headed as above, and I was requested to forward the following resolution unanimously passed by the council, viz.:—

> That this council, having regard to the high standard of THE LANCET, feels that it is impossible to believe that the Editor of that paper can have seen the communication in the current issue on page 1698, suggesting that the inhabitants of Eastbourne are likely to falsify the census returns, and feels confident that his attention has only to be called to that objectionable statement to ensure his repudiation of it.

I am certain that the article in question must have escaped your personal attention and confidently hope that you will in your next issue adopt a course that will be satisfactory to the people of this town. I may add that the article has been extensively reproduced in the newspapers circulating in Eastbourne and the county of Sussex.

I am, Sir, your obedient servant,

MARK MARTIN,

Town Hall, Eastbourne, Dec. 8th, 1908. Mayor.

*** No article in THE LANCET escapes our personal attention, so that we cannot avoid responsibility in the way his Worship suggests. But we read the sentence as much more general in its application, and must view any attempt by any community to prove its population up to a certain figure with suspicion. We gladly qualify the word "falsify," as having an offensive significance for persons interested, by saying that we intended to convey a feeling that every effort would be made to swell the returns, so that extraordinary care would have to be exercised to keep them trustworthy; and we should give the same warning in like circumstances to any community. It is human nature, not Eastbourne, that is frail.—ED. L.

## THE OBJECTS OF EXAMINATIONS.

*To the Editor of* THE LANCET.

SIR,—In connexion with this subject it seems to me that one point is not sufficiently clearly recognised. By asking a candidate even one single question on a piece of minute anatomy—such, for instance, as the lenticular ganglion, the petrosal and chorda tympani nerves, or the smaller surfaces of the palate bone—the whole level of an examination in anatomy is at once lowered from that of a practical subject of some use to that of a cram subject which is not only useless but calculated to do positive harm. The candidate says to his friends, "They asked me Meckel's ganglion," and at once everyone begins getting up not only Meckel's ganglion but a whole host of equally minute points the knowledge of which is only necessary for men who are engaged in research work. As Professor Starling has pointed out, the advent of the pressure forceps and of asepsis has changed everything. Not only so, but for diagnostic purposes facts such as those relating to the common nerve supply of the hip- and knee-joints are really of very little use; what really is of use is the clinical fact learnt in the out-patient room that pain in the knee is often an early symptom of hip disease. The examiners set the standard and it rests with them to insure that ancillary subjects are not out of all proportion to the rest of a student's training.

A good examiner helps a candidate to do his best, while a bad one deprives a man of confidence at the start and he probably goes from bad to worse. I was once asked a question at the beginning of a *viva voce* examination which I have never quite fathomed yet. It was this: "Under what conditions does elastic tissue occur in the body?" Now the hopeless confusion of theory and fact raised in one's mind by this question is appalling. If the examiner had asked, "In what parts of the body is elastic tissue found?" and had then said, "And what do you think are its uses?" we should have been able to get along nicely. Some men reckon an examiner's merits in terms of the number of doubtful candidates he is able to fairly help through. This is complicated by the question whether the examination is designed to help a candidate on or to keep him back. The former object is undoubtedly the right one.

Let examinations be based on this principle and combine with them a system of apprenticeship—to a hospital, not to an individual,—give two-thirds of the marks for the apprenticeship work and one-third for the examination work, and then a man will be able to acquire a sound practical knowledge of his profession. The whole question is one of national importance. I am, Sir, yours faithfully,

M.A., M.B.

## ANAPHYLAXIS.

*To the Editor of* THE LANCET.

SIR,—May I ask you or some of your readers who may be better instructed than myself how the word "anaphylaxis" came into being? It was, I believe, coined by Dr. Charles Richet and means (I gather from an article on the subject in the *Journal of the American Medical Association* of Nov. 7th) hypersusceptibility. If this is so, how does that meaning arise from the word anaphylaxis? Is the *ana* the alternative form of the *a* privative and, if so, why not have made the word aphylaxis on the model of aphasia, atrophy, or agraphia? Of course, the *a* before a vowel becomes *av* as in anæmia. If, on the other hand, the *ana* is the preposition the word should mean "repeated protection" or "increased protection." I shall be grateful for any information on the subject. If anaphylaxis does mean "without protection" it is easy to see whence arises the idea of "increased susceptibility." I am, Sir, yours faithfully,

Dec. 7th, 1908. ETONENSIS.

## PROPOSED MEDICAL REFORMS IN NORWAY.

(FROM A SPECIAL CORRESPONDENT.)

THE report is now to hand of the medical commission appointed to inquire into suggested reforms in connexion with medical men, midwives, and quacks, and also to investigate further the proposed "doctor paragraph" in the new criminal code which enacts that the refusal of medical men and midwives to attend urgent cases should be made an offence punishable by law. This paragraph aroused much opposition in the Storthing and threatened the new criminal code with danger. It was therefore decided that the paragraph should be omitted and that the matter thereof should instead be treated by the medical commission, together with other proposed legislation dealing with the rights and duties of medical men generally.

After discussing the criticism by the Storthing of the "doctor paragraph" the commission expresses its doubts as to what extent and in what cases compulsory attendance on patients can be forced on the medical profession. The objection to the inclusion of the paragraph in the criminal code must surely cease to exist when it forms a link in a special law affecting the rights and duties of medical men. But not even in such a law should any condition be imposed that experience has not proved to be satisfactory to the community. The commission finds that not only must the need for immediate attendance by the medical man be recognised by those concerned but also that he himself must be convinced of this same need. Should a medical man's liability to attend, as in the "doctor paragraph," be unlimited, provided that the demand for aid be pushed, many difficulties and much unpleasantness would arise, especially in country districts where attendance on patients out of their turn may be imperative.

If the principle underlying the "doctor paragraph" is to be realised (as the commission thinks it should be) the conditions under which a medical man is bound to attend must be carefully defined and confined to accidents and childbirth. Under these conditions his duty would be plain both to himself and the patient, and urgent cases would be attended to in preference to others. The medical faculty, it is presumed, cannot take exception to such a plan, limited as it is to what is already practised by every right-thinking medical man. Should the aid thus given not be paid for by the parties concerned payment is to be made by the municipal authorities in the patient's district, these authorities in their turn having the right to seize the property of the recalcitrant patient if need be. Further, in the interest of public health, a medical man in attendance on an epidemic or infectious illness that is the subject of official control is to notify such a case and to prescribe such measures as are required to limit the spread of the disease.

By the present law the King may grant the right to practise medicine in Norway to one who has not passed the country's medical examinations but who in other respects has proved his knowledge of medicine. It is proposed that the King shall retain this privilege but that the candidate for a licence to practise shall pass a test imposed by the medical authorities. This condition is, however, not to be applied in the case of foreigners appointed as teachers by the medical faculty or in the case of foreigners wishing to practise only among their fellow countrymen or wishing to undertake purely scientific research work, such as the study of leprosy. There is nothing in the present Norwegian law to insure to a medical attendant priority of right in bankruptcy claims or after the death of his patient. In many disputed cases, however, it has for a long time been the custom to allow medical men priority of claim, and it is now proposed to make this practice law. This priority of claim is not only to include ordinary fees for attendance but also all charges in connexion with consultations, operations, and medicaments. The claims must not, however, date back more than a year from the declaration of bankruptcy or death of the creditor or patient.

With regard to professional secrecy, the commission finds that a medical man's privileges in this respect should be clearly defined by law, and in order that the sacredness of private life insisted on by the public when confiding in a medical man should be respected it is proposed that the privilege of professional secrecy shall not only include confessions made by a patient but also all information acquired by professional independent observations. On the other hand, a medical man is to be free to disclose information acquired in connexion with examination for insurance or for an official appointment, should such information be required by the parties concerned. The privilege is also to be a dead letter in cases of identification, &c., by a medical man called in as an expert.

According to the present law a practitioner may not be deprived of his licence unless he has been convicted of a punishable offence. Thus in the case of a medical man's insanity or excessive use of morphine there is no effective method to prevent his practising, however great the danger may be to the public. In such circumstances it has been the custom of the medical faculty's administration privately to request the practitioner concerned to cease to prescribe certain drugs, &c. This must be considered an unsatisfactory practice, depending as it does on the good-will of the parties concerned. Legislation is therefore required which will deal satisfactorily both with the interests of the public and those of the medical man whose livelihood is threatened. It is proposed that a practitioner who is considered unfit for medical practice on account of insanity or mental weakness shall be deprived of his licence where judgment has been so given after an exhaustive inquiry by the Government's medical department. In the interval, before judgment has been given, the King is to be authorised temporarily to suspend the licence of the medical man in question.

At present there are no special laws regulating dentists and their work, and licence to practise is given by the King in accordance with the "quackery law." As this practice is unsatisfactory it is proposed that the special licences should no longer be given, the licence only to be acquired after passing the requisite examination, the candidate being over 21 years and undertaking to carry on his work honourably and conscientiously. Professional secrecy and liability to suspension are to be the same as for medical men. A midwife's obligation to attend at once on all cases irrespectively of persons and the prospect of payment has been severely criticised by the Society of Midwives. The commission therefore proposes that a midwife shall be able to claim debts from the municipal authorities on the same terms as a medical man whose attendance has been compulsory.

Finally, the commission deals with the quackery question which has recently been much discussed in the medical press, quack advertisements in the daily press having been severely commented on. Admitting the correctness of the medical attitude in this respect and the advantages to be obtained by repressive legislation against quackery, the

commission finds that, with the exception of four medical districts, quackery is already on the wane, and that among the general public, who really are the parties most concerned, there is no great wish for any reform in this respect. On the other hand, it is proposed that regulations already in force against quackery should be more strictly applied than heretofore, the principles on which these regulations are founded remaining as before.

## THE INTERNATIONAL CONGRESS ON TUBERCULOSIS AT WASHINGTON.

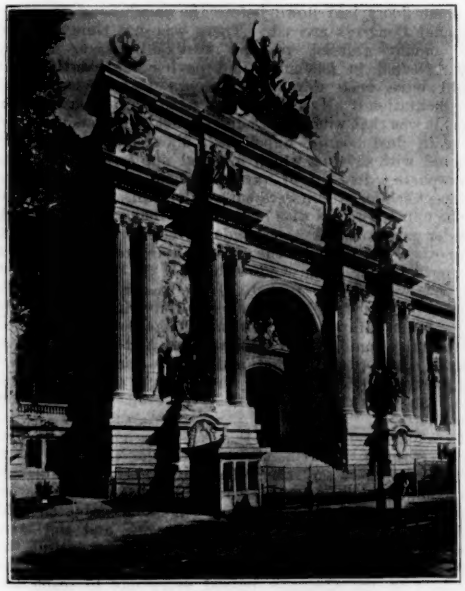
(FROM OUR SPECIAL SANITARY COMMISSIONER.)

WHY THE CONGRESS WAS BADLY HOUSED.—THE UNMANAGEABLE SIZE OF MODERN CONGRESSES.—NEED OF GOVERNMENT AID.—THE HUNT FOR PREMISES.—THE PRESSURE EXERCISED BY THE MEDICAL PROFESSION AND THE PARLIAMENTARY WRECKERS.—THE SUPPRESSED RESOLUTIONS AND THE VOICE OF SCANDAL.—THE ABORTIVE INTERNATIONAL COMMITTEE AND ITS BLUNDERS.—THE MORAL OF THE STORY.

New York, November, 1908.

ON the homeward journey, when waiting in New York for the steamer that was to take me back once more to Europe, I had an opportunity of discussing at length some of the shortcomings of the Congress with one of its principal and active organisers. It must be acknowledged that no congress of such importance has ever been so badly housed, the accompanying reproductions of photographs showing by contrast more than words can express. The first is the entrance to the Grand Palais at Paris where the Second Congress on Tuberculosis was held; the second is the entrance to the building where the Third Congress was held, the size of the figures showing that the reproductions have been arranged on practically the same scale.

FIG. 1.



Reproduction of a photograph showing the Avenue d'Antin entrance to the Grand Palais, Paris, where the Second Congress on Tuberculosis was held in 1905.

I was pleased to obtain, and this on the best authority, an account of what had occurred, leading up to such a poor reception of the Congress. It appears that, according to the American law, the Government cannot itself participate in receiving a congress. On the other hand, it may allow the Ministry which is particularly concerned in the object of a congress to take part in that congress. The vagueness of these conditions makes their strength. Thus though the spending of money over a congress is not expressly sanctioned, neither is it forbidden. Consequently it was fully expected that one or more of the Ministries, forming

FIG. 2.

Entrance to the session of the Third International Congress on Tuberculosis held in the unfinished premises of the new Museum at Washington in 1908.

part of the Government, would aid the Congress. Nevertheless the National Association for the Study and Prevention of Tuberculosis set to work to raise a fund of £20,000 so as to defray the costs. For this purpose a special office was opened at Washington. Then the organising committee visited all the buildings in Washington to find a suitable place wherein the Congress might be held.

Here I would interrupt the narrative to enter an energetic protest against such lax proceedings as are here described. The rule for these large international congresses is that no invitation shall be accepted unless it is endorsed by the Government of the country from which the invitation emanates. It is then only natural to presume that a Government would not invite several thousand guests unless it has a suitable building in which to receive them. Therefore in 1905 the American delegates who invited the Congress to hold its next session in the United States and got Mr. Elihu Root, the Secretary of State, to confirm this invitation, should have assured themselves first that there was a suitable *locale* at their disposal and that the necessary money would be forthcoming. Indeed, this is the meaning of a Government invitation. It is quite evident that private individuals cannot provide palatial buildings and spend the thousands of pounds necessary to receive a great international congress. Precisely by reason of the difficulty and expense we have now reached the stage when these congresses are becoming unmanageable and a very earnest effort, it is hoped, will be made either to reduce their size or their frequency. The Sixteenth International Congress of Medicine will meet at the end of next August in the capital of Hungary, and it must be noted that an announcement has already been sent out to the effect that a proposal will then be brought forward to hold these congresses only once in four years instead of every third year. The difficulty of organising huge international congresses, to which this most recent incident again testifies, was recognised many years ago. The American delegates at the Paris Congress of 1905 had plenty of comparatively recent experience to warn them. There was fresh before them the history of the great crush at the International Congresses of Medicine and of Hygiene that met at Paris in 1900; and, above all, there was the appalling gathering of some 7000 persons

at Madrid in 1903, when the Fourteenth International Congress of Medicine met in the Spanish capital. They witnessed with what exquisite courtesy and hospitality this vast assembly was received on two different occasions and entertained by the Queen Regent and the young King Alfonso in their magnificent palace and its extensive gardens. If there were not hotels enough to house the delegates there were plenty of palaces in which to receive them and State art tapestry to decorate the walls of the places where they met. Yet the Spaniards are a poverty-stricken people and Madrid is only a small city. But, of course, what was done in Spain was done by the Government, and there was no going round with a hat to get donations from millionaires whose interests are often diametrically opposed to the sanitary reforms which science claims on behalf of the public health. Therefore, it seems to me that the necessary preparations had not been made and the invitation given in 1905 for the Congress to meet in America in 1908 was premature.

To continue the narrative, I was quite seriously informed that the organising committee, after hunting round and visiting all the buildings in Washington, could not find any place that would be suitable for holding the Congress. This surely is a most astounding explanation, for obviously the resources of the capital of a great country must be well known. Since Washington as a city is still quite in its infancy its resources are naturally limited and therefore easy to ascertain and to enumerate. There could have been no difficulty in finding out beforehand, if it was not already known, whether there existed in Washington a suitable building available for the Congress. Yet it was only some time after Washington had been selected that it was discovered that the city possessed no place big enough for such a gathering. Then the organising committee bethought itself, not of the Capitol, that majestic building where both the Houses of Parliament meet, but of the Congressional Office Buildings. This adjacent building was found to be more suitable because it has a great number of private offices and large committee rooms where the sections might have met. Further, there are vast corridors that would have served very well for the exhibition which it was proposed to hold in connexion with the Congress. This, however, is a new building and was not yet completed. Some of the offices were finished and already occupied but others were still in the mason's or house decorator's hands and the corridors were far from ready. If, nevertheless, the International Congress on Tuberculosis had met there, the work would have been interrupted and could not be completed in time for the reassembly of the Senate and the House of Representatives.

In spite of these obstacles the organising committee of the International Congress on Tuberculosis pressed forward energetically a demand for the use of the Congressional Office Buildings. Then it was that Mr. James Mann of Illinois, member of Congress and one of the Whips of the Republican party, energetically opposed any such concession and was actively supported by the Speaker of the House, Mr. Cannon, and Mr. Payne, a member for New York, and others. Here I may perhaps explain that Mr. Joseph Gurney Cannon belongs to a Scotch-Irish Quaker family that took him across the mountains in a prairie schooner when he was four years old and that he has maintained himself since the age of 14 years. He has acquired a wonderful knowledge of the American political machine. "Uncle Joe," as he is familiarly called, has won great influence and popularity. Unfortunately, his surroundings and career were not those which would best fit him to appreciate the world's advance in medical science and the importance of extending international amenities to the representatives of learning and research. So Mr. Speaker Cannon refused to grant any facilities to the organisers of the Congress on Tuberculosis. He did not want the Congress buildings to be disarranged and feared that if he yielded other and less desirable requests would be made. Thereupon a regular campaign was organised. A great flood of letters poured in upon Congressmen of all parties. It is claimed that never before have Members of Parliament received so many protests and petitions. The medical profession throughout the United States set to work to bring this pressure to bear; and this is the specially cheering and encouraging aspect of the Washington Congress—namely, the energy and the whole-heartedness with which the general practitioners, the rank and file of the medical profession, threw themselves into the movement. These manifestations were so emphatic and widespread that now the great majority of the members of the two Houses were in favour of granting everything that was asked, no matter how great the derangement. However, the order of procedure is such that requests of this sort cannot receive assent rapidly unless they are made unanimously. Hence it suffices for one or two wreckers to object and the wishes of the majority are brushed aside. On this occasion again Mr. Mann and Mr. Cannon performed the part of principal wreckers.

The committee organising the International Congress on Tuberculosis now tried to obtain the Capitol itself, though it felt that it was not so well adapted for the purpose. Certainly it would have added great lustre to the plenary meetings had they been held in the Senatorial Chamber or the Hall of Representatives, and these Houses of Parliament are admirably suited for the purpose. On the other hand, there are no convenient rooms in the Capitol for the meetings of the sections. Then, again, it was intended for propaganda purposes to have an exhibition and to admit the public free of charge. The Capitol is still less suited for such a purpose. Rather than consent to this, many influential members of the legislature declared that they would prefer to vote a money grant so as to facilitate the holding of the Congress on Tuberculosis elsewhere. The committee, however, knew too well that there was no place elsewhere. Nevertheless, a Bill was brought in and £8000 were voted so that some other place might be rendered available. It was then decided to try to utilise the new National Museum which was in course of construction. The walls were up and the roof was on but that was about all. According to the law money voted in this manner should be spent under the direction of the President of the Republic. Mr. Roosevelt, it should be noted, had throughout supported all the requests made by the committee organising the Congress on Tuberculosis, but Mr. Mann and Mr. Cannon had between them the power to defeat the President's desires. As soon as the $40,000 had been voted the contractors building the new museum were stopped and special men were put in to work day and night, so that there might at least be some floors laid down before the members of the International Congress arrived. There was not time to spend the money granted to the best advantage. Money was lavished in hastening and paying for overtime that could have been devoted to secure better comfort and ornamentation if all this had been settled at an earlier date. Thus it was that when the Congress met the floors consisted of plain deal boards, unpolished, uncarpeted, and merely covered with sawdust which mingled unpleasantly with the atmosphere. Instead of various rooms and halls for the different sections there were but wooden palisades, terminated in the upper portions with cheesecloth, that constituted such slender partitions that the sounds travelled from one section to another. As shown in the accompanying reproduction of a photograph some of the windows had not yet been put in. The entrance was not constructed. There was only a gaping hole protected by a few rude planks and rough hoarding. By way of decoration two common planks had been nailed horizontally against two wooden posts and on them were painted the words "International Congress on Tuberculosis." For sole ornamentation there was a cluster of small, cheap, American flags; there were not even even a few flags of other nations.

To understand the effect that this rough makeshift produced it must be remembered that the previous International Congress on Tuberculosis had held its sittings in the Grand Palais of the Champs Elysées, a building so vast that the two rival French salons are able to hold their annual art exhibitions here at one and the same time. If we glance for one moment at the beautiful, the vast and imposing monumental entrance by which the members of the Congress passed every day to reach the sections from the Avenue d'Antin side of the Grand Palais, and compare that architectural *chef d'œuvre* with the shanty-like hoardings that masked the unfinished door of the Washington Museum, the deplorable effect this was likely to produce will be easily understood. But I am glad to be able by giving the history of how it all occurred to show that the fault was with the politicians and not with the medical profession. Undoubtedly it was highly imprudent for the American delegates at the Paris Congress of 1905 to offer American hospitality without having first assured themselves

that the American Government would supply the necessary buildings and a sufficient subvention. Nevertheless, they had a promise from the Secretary of State and the support of the President of the Republic, and everything would probably have worked out satisfactorily but for the fact that two or three political wire-pullers failed to understand the importance of the Congress that was about to take place.

All this did not tend to make the international delegates take a lenient view of other shortcomings that followed on the initial one of unpreparedness. The climax was reached when on the Saturday morning the International Committee discovered that an attempt was to be made to suppress all the resolutions of the Congress. This I have already described,[1] but it appears that deductions have been made for which I can not be held responsible. Suspicion was first aroused by invitations given to a breakfast which was held at 8.30 on the Friday morning at the Hotel Villa. There were present at this breakfast some members of the American organising committee and apparently no foreigner excepting Professor Robert Koch. It was thought that the resolutions adopted in the sections were discussed at this breakfast, but I am assured by a delegate who was present that such was not the case and that the conversation ran principally on the question of where the next Congress should be held. But the plot seemed to thicken when it was found that the same set which met at breakfast held what has been qualified as a caucus meeting at 5 o'clock that same afternoon and that there was present at both these meetings the intermediary who had obtained from a former member of one of the greatest of the great American trusts a subscription towards the expenses of the Congress amounting, it was said, to no less a sum than $30,000. What made the Friday afternoon meeting appear like a caucus was the absence of nearly all the foreign members of the International Committee. The official delegate from Chili had been met in the corridors and persuaded to enter. This meeting appeared to him to consist almost exclusively of Americans and yet it was discussing the resolutions of the International Congress. This seemed to him so irregular that he wanted to leave, as he did not wish to be compromised by unwillingly taking part in the proceedings. Professor Koch was examining a resolution, and finally agreed to a recommendation for the boiling of milk. Of course, this was absolutely out of order. Professor Koch, it appeared, would not accept the resolution on bovine tuberculosis passed by the section which dealt with the subject. Obviously there was here a serious misunderstanding. Someone even went so far as to suggest that Professor Koch should himself frame a resolution just as if there had been no Congress and no meeting of the sections. Professor Koch kept saying that he could not accept, and that the Germans who followed his lead would vote against, this or that proposal. But even if this had been a proper meeting of the International Committee itself, it could not possibly have interfered with resolutions actually carried. A committee cannot alter the decision of a section. The Congress wanted to know how the sections had voted, and no amount of disapproval on the part of Professor Koch or of any committee could alter a vote duly taken by a section. In view, however, of Professor Koch's disapproval and also because there was some disagreement in regard to the wording of a resolution on the housing question, it was suggested that the resolutions carried in the sections were not of much importance. Then it was argued that the hurried vote given at the closing sitting was even less important than the vote of the sections and that, on the whole, it would be best not to mention the resolutions at all. With a carelessness and want of perspicacity which all concerned have now had leisure bitterly to regret this view was ultimately adopted.

In these circumstances the American organisers have really only themselves to blame if their action has given rise to incorrect interpretations. Perhaps some of them are old enough to remember the time when, if anything untoward happened in Europe, the opinion was at once expressed that it must be the fault of Bismarck. Such is the state of mind to-day in America. If anything goes wrong it is the fault of the trusts. If there is any fault to be found with the International Congress on Tuberculosis it is all the doing of the trusts. So here we have money traced to the trusts, a meeting irregularly held, and a far-off Chilian dragged in to give it a semblance of the international character which it did not possess, and then resolutions are suppressed. As a matter of fact, the delegate from Chili had attended more international congresses than some of the American organisers and was much better able to appreciate the blunder which they were committing.

The answer to the above attempt to interpret the events in a scandalous sense is, first and foremost, that in the war against tuberculosis any number of wealthy people have subscribed money and this has never prevented the denunciation of all the conditions that favoured the spread of the disease. If the medical profession could be influenced by money considerations they would not take the lead in the campaign against tuberculosis, as no disease affords a better source of revenue to the profession. With regard to the money subscribed for the expenses of the Congress the organisers were beholden to wealthy people who had endowed hospitals and dispensaries but these subscribers could not, and would not, exercise any influence whatsoever over the Congress. Though so much has been said in America about "graft," municipal corruption, and venal practices generally, the cause of science does not attract mere money hunters, the medical profession has always enjoyed the highest reputation and stands above suspicion. But it is frankly admitted that a great blunder has been committed. The meeting held at 5 o'clock on the Friday afternoon was not intended to be a hole and corner gathering. It was meant to be a formal, regular meeting of the entire International Committee. As, however, the foreign members knew that they would meet, according to the usual custom, at 10 o'clock on the Saturday morning they did not anticipate a convocation for 5 o'clock on the Friday afternoon, and would probably have had other engagements interfering with such a convocation. But they were not properly notified and did not go. There were present, I am told, only the representative of Canada, Professor Koch from Germany, Dr. von Schrötter from Austria, and the Chilian representative. Obviously this was not enough to constitute a quorum of the International Committee. Any conversation held should have been considered as informal, and, of course, so unrepresentative a gathering should have shrunk from the responsibility of interfering with the well-established procedure of international congresses, particularly as many of those who were present had had no experience of such congresses. On the Saturday morning when the International Committee really met and there was a full quorum, the violent protests that arose soon convinced those who had assisted at the abortive meeting of Friday afternoon that they had committed a serious mistake. Those who on the Friday had been in favour of suppressing all the resolutions carried in the sections now felt that it would be better to resuscitate them. That being so, the committee should have proceeded in the usual manner and appointed persons to read out to the Congress the text of the resolutions that had been adopted by the sections. Instead of this it drew up a sort of omnibus resolution which was supposed to summarise what had been done in the sections, but which, of course, had never been seen or voted upon by anyone. With the exception of the emphatic pronouncement on the question of bovine tuberculosis this resolution consists of an appalling collection of platitudes, and when compared with the resolutions carried at Paris three years ago can only be qualified as a retrograde step. On the other hand, some of the resolutions adopted in the sections were a distinct advance on what had been done on previous occasions, and therefore it is natural that their suppression should occasion keen disappointment.

From this long story of muddle and of misunderstanding the moral stands forth quite clearly. Every civilised State should have in its annual budget a sum set aside for the advancement of science. This sum should suffice, among other things, to enable each State in its turn to entertain the more important international scientific congresses. Invitations from countries where this is not done as a matter of principle should be refused. To obtain private subscriptions for congresses that are of national and international benefit should not be necessary. It is the duty of Governments to attend to such vast interests, and, in respect to these great international congresses, many Governments have already

[1] See THE LANCET, Nov. 14th, 1908, p. 1477.

expended large sums for this purpose. It is not fair to expect men of science to go round with the collecting hat. They thus expose themselves to insults and sometimes to very cruel and unjustifiable suspicions. Money collecting forms no part of a scientific education. Science demands to be placed high above the corrupting influences of money. Therefore the premises and money needed for these congresses should come from the State, and only from the State. The breath of scandal has never reached the many congresses which have been held under these conditions.

## TUBERCULOSIS IN CANADA.

(BY A SPECIAL CORRESPONDENT.)

NORTH America is a large continent and in many respects there is a sharp line of demarcation between Canada and the United States, but in matters of education and in great social questions there are wonderful unanimity and coördination. No sooner did we (the delegates from France, England, Scotland, and Ireland to the International Congress of Tuberculosis at Washington) land in Montreal than we found that a great wave had spread from Washington to the eastern side of Canadian territory, at any rate. The first Montreal newspaper that fell into our hands, after referring to the Washington Congress, gave some account of the prevalence of tuberculosis in Montreal and the Province of Quebec, and announced that the Association for the Prevention of Tuberculosis in Montreal was entering upon an extensive movement against this scourge, and that Dr. R. W. Philip of Edinburgh was to open the campaign by giving an account of his tuberculosis dispensary system as carried out in the capital of the North. I had the opportunity of attending this meeting which was held in the library of the Montreal Board of Trade. The meeting, which had been "convened" most carefully, was attended not by medical men only but by some of the most influential of the citizens, many of whom seemed to be impressed deeply by Dr. Philip's clear and concise statement of his case.

Professor J. G. Adami, in introducing Dr. Philip, spoke of the excellent work carried out in the capital of North Britain and suggested that what was possible in Edinburgh was possible also in a city like Montreal. He was glad to say that they had already made a beginning and that the Association for the Prevention of Tuberculosis had determined to hold an exhibition, to give lectures, and to train teachers and children in hygiene especially in its bearing on tuberculosis. Professor Adami, I learned afterwards, is chairman of the exhibition committee and is throwing himself with great energy and effect into the work of organisation of what promises to be a most successful movement.

Taking the "dispensary" as his starting point, but premising that this dispensary should be kept in closest touch with the medical officer of health's office, Dr. Philip made it clear that cases of tuberculosis could be sought out, sorted, educated, and treated by the dispensary officials more readily than by any other agents. The dispensary, in fact, was to be not only an information bureau but a clearing house. The patients who came for treatment could be kept under observation and other patients associated with them could be discovered. These could then be sorted into "lots," each of which should receive instruction and treatment suited to their special conditions and circumstances, and, if necessary, drafted to the hospital for the treatment of advanced cases, to the sanatorium for early cases, or receive such instruction as would render them more helpful to themselves and less dangerous to the community. Such, put very briefly, was the sketch placed before the business men of Montreal. In support of his thesis Dr. Philip gave a series of statistics bearing on the results obtained. Comparing Edinburgh and London and taking two periods of ten years each he showed how, as the outcome of the general measures taken to combat tuberculosis, there had been a steady and regular fall in both London and Edinburgh during the first ten years and that in London the fall had continued at the same steady rate during the second decade. In Edinburgh, however, during the second period, in which the dispensary organisation had been completed and brought into full operation, the fall had gone on much more rapidly and the death-rate from tuberculosis had fallen to a figure lower than that met with in almost any of the large towns in the country. Dr. Roddick, who occupied the chair, in thanking Dr. Philip, asked any of those present to put any difficulties which they might have before the lecturer who, he was sure, would be glad to answer any questions. Several other speakers called attention to the importance of this question to a large working community like Montreal. It was evident that tuberculosis was an infective disease, the infectivity extending over a very long period, though the results of infection might not manifest themselves for some considerable time. Still, if slow it was sure. Tuberculosis, however, though such a fatal disease was not only a curable disease if taken in its early stages but a preventable disease. If preventable why did they not prevent it? From the purely business point of view, it was well worth making an effort to eradicate a scourge which played such an important part in lowering the efficiency of their workers. Some questions put by members of the audience brought out the fact that many people would be glad to undertake their share of the work of the crusade if they could only make up their minds as to what they ought to do. Dr. Philip, in answering these questions, made it clear that the dispensary kept in close touch with the medical officer of health must be the centre of all the work, and that this should be made a first charge on any funds, corporate or private, which might be raised. The hospital for the treatment of advanced cases of pulmonary tuberculosis should be the special charge of the municipality, as this was the most important factor in "prevention." The sanatoriums or "curative" establishments might then be left to private liberality and the more such private liberality was exercised the sooner would preventive measures become less and less burdensome on the community.

It was very interesting to note how keenly the different statements were followed and with what applause the more practical parts of the address were punctuated by some of the shrewdest business men in the world, and I shall be much astonished if there is not some early and useful outcome of this significant meeting.

## MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

### *Humane Slaughtering.*

MANY people who are not vegetarians feel some qualms when they think of the methods of slaughter adopted in killing animals intended for food. The pole-axe and pithing are the means chiefly used in these northern parts, but a demonstration was given on Nov. 25th of a method that may be called new here, though it is used more or less in some of the southern districts. It consists of a short revolver barrel ending in a square-shaped extension which enables the operator to put the instrument in the correct position. This is connected with a shaft at right angles to it, down the centre of which runs a wire to a hole at the end. The barrel being placed on the forehead, the bulleted cartridge, ·450 smokeless, fired by the wire trigger at the end of the shaft, makes a hole in the animal's head large enough to admit of the insertion of a cane for pithing purposes. An official of the Royal Society for the Prevention of Cruelty to Animals gave a demonstration of the effectiveness of the instrument and those present expressed approval of the great humanity of the method. In no case was more than a slight convulsion observed in the fallen animal which was killed instantly.

### *Workhouse Beer.*

There is no uniformity in this district in regard to allowing the inmates of the workhouses beer at Christmas. In Salford this vexed question has been settled, in a kind of "split the difference" way, by the officers having a barrel of beer brought in for use at Christmas while the pauper inmates are to have none. The conscience of the guardians will therefore be clear as far as the paupers are concerned. One of the guardians was so imbued with logic that he thought if beer was bad for the inmates it was also bad for the officers. Another said that the workhouse committee without comment agreed as to the officers but that there was a storm when beer was suggested for the inmates. Another guardian said that he "was not against beer" but it was not reasonable to treat the officers and inmates alike in this matter.

So it seems as if the question of beer being good or bad for people at Christmas time depends very much on social position. This gentleman could not deny that many of the inmates were in the workhouse owing to a liking for strong drink and that it was undesirable to reintroduce beer to them. He paid, by the way, a somewhat ambiguous compliment to the officers by saying that they had not brought their condition to that of the paupers "up to the present." A lady guardian said that the inmates expressed themselves as satisfied without beer. The amendment to give them beer was rejected and probably, on the whole, wisely. But it is a curious position for the guardians to have the tea-pot on one side and the beer barrel on the other. They, however, stand on a higher plane.

*Overhead Telegraph Wires.*

The various committees of the Manchester City Council do not always see eye to eye. The city is already well supplied with overhead wires, too well by far, but there is a danger of still more being added to the hideous and dangerous network that threatens us in the principal streets. A long discussion took place the other day at a meeting of the highways and paving committee in regard to an agreement entered into between the watch committee and the Postmaster-General granting leave to the latter to erect telegraph posts in certain streets of the city. When first this proposal came before the council it was rejected by a large majority. Under the new agreement the watch committee seemed to think that the difficulty had been got over by giving the poles "a double debt to pay," and arranging that they should serve the purpose of bearing the telegraph wires and also those connected with the Gammell fire alarm system which the corporation has decided to adopt. The highways committee is practically unanimous in opposing the scheme and passed a resolution that no poles should be erected and that all wires connected with the Gammell system should be put under ground, or attached to the tramway standards, so now there is a prospect that the further disfigurement of our none too beautiful streets may be prevented. Besides being a disfigurement, these overhead wires are a dangerous nuisance. It is to be hoped that the opposition to the scheme will be successful.

Dec. 8th.

## WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

*University College, Cardiff, Medical School.*

THE increasing number of students entering the medical department of the University College of South Wales and Monmouthshire at Cardiff is seriously taxing the limited accommodation provided for them. The College buildings consist of a three-storey stone building which was originally the Cardiff Infirmary, supplemented by wood and iron structures which have been erected from time to time as they were required. The medical school is provided for on the topmost storey of the main building where there are two lecture theatres, a dissecting-room, a museum, and a room for practical histology and practical physiology. In the department of physiology Professor J. B. Haycraft has found great difficulty in carrying on his work to the best advantage owing to the lack of accommodation for demonstration purposes. In a letter which he recently sent to the College council asking that some steps should be taken to lessen the difficulties of teaching in such cramped quarters, he pointed out that the number of medical students entering the Cardiff College was greater than in any other provincial school except Cambridge and that the number was exceeded in only three of the London schools. The council will be well advised if it makes the necessary provision asked for by Professor Haycraft with as little delay as possible.

*Water-supply of Glamorgan.*

The Glamorgan county council has realised almost from the time of its formation that the provision of an adequate supply of water was a question of serious concern and one with which the council would have ultimately to deal. The question has grown more and more urgent in recent years owing to the rapid growth of the colliery districts and to the necessity for obtaining a supply well outside the coal-field. The council promoted a Bill in the last session of Parliament to empower the council to make inquiries and surveys with a view to the utilisation of water-supplies in South Wales and to form water districts and for other purposes. The power to form water districts was not conceded by Parliament, but the council was fully empowered to make inquiries and surveys and this power has been sufficiently utilised to justify the council in promoting a Bill in the next Parliamentary session having for its object the preservation of water areas for the benefit of various districts in the county and the formation of a water board which it is intended should include representatives from the local sanitary authorities. It is proposed in the Bill that the board should buy up the existing sources of supply of all the areas within the administrative county. The three county boroughs within the county, Cardiff, Swansea, and Merthyr Tydvil, are already well supplied with water for their present needs and the Cardiff corporation is actively engaged in securing a sufficiency for the anticipated increase in the population of the town. The county water board will keep in its own hands the sources of supply and the reservoirs and will supply the water in bulk, at a maximum charge of 4½*d.* per 1000 gallons, to the local authorities who will have the control of the distribution within the areas of their administration. The principal undertakings which it is intended to purchase are those of the Pontypridd Water Company and of the Rhymney and Aber Gas and Water Company. The former has a storage reservoir of 200 million gallons from which supplies are delivered to a portion of the Rhondda valleys, the town of Pontypridd, and to portions of the urban district of Caerphilly.

*Damages against a Cardiff Hairdresser.*

A Cardiff lady has obtained damages to the amount of £41 against a hairdresser in the town in circumstances which are fortunately of somewhat rare occurrence. While having what was styled a "brightening shampoo" she declared that the wash which was being used burned her head, took away her breath, and made her eyes water, and that subsequently her hair changed colour and broke off both at the roots and at the ends. Medical evidence was given on behalf of the hairdresser in support of his contention that the condition described by the lady was not due to the wash which was used, but in the end, as already stated, the county court judge gave judgment in her favour.

Dec. 8th.

## SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

*Edinburgh and Leith Medical Practitioners' Association.*

THE inauguration of this association was referred to some weeks ago. It has now concluded its first attempt to deal with public questions affecting practitioners and the results are deserving of note. Dr. Alexander James read a paper before the association on the relations of the practitioner and the public health authorities. In this paper the development of the medical officer of health and of the inspecting officer in board schools was traced. In both cases the object was to protect the community as a whole from disease to which they were exposed as the result of the aggregation of individuals in communities and in schools. He emphasised the fact that the medical man was an expert whose opinion the public were not in a position to judge of and that it was, as a consequence, of the utmost importance that the medical advice should not lead to responsibilities and burdens being laid on the community when they ought to be left on the shoulders of the individual. This proposition was preliminary to Dr. James expressing the opinion that an impartial examination of the health statistics of the last 25 years showed that public health enactments had not been followed by the improvement which the public had been led to expect, and that in certain cases harm had resulted therefrom. He thought that at the present time what was desirable in the public interest was a lessened rather than an increased interference on the part of the public health authorities in the ordinary relations between the public and the medical profession. In conclusion, he suggested that the association might be asked to give its opinion on each of the three following points: (1)

that the experience of the last 25 years indicates that the public health enactments as regards the stamping out of acute infectious diseases have not been so successful as was anticipated, and that modifications in the way of lessened legislative interference in the ordinary relations between medical man and patient were desirable; (2) that the compulsory notification of phthisis as an infectious disease should be ordained in those cases only in which, in the judgment of the medical practitioner, the patient's condition and surroundings form a menace to the public health; and (3) that in the better-class schools any medical inspection of the pupils required by the State should be carried out by the family medical attendant or by the medical man ordinarily employed by the parents or guardians of the pupils. The measure of interest taken in these propositions may be gauged by the fact that the members of the association discussed them at three meetings. Many members spoke and, as might be expected, there were different views; the quality of the speaking was good on the whole. The debate concluded on Saturday night, Dec. 5th. In concluding a debate of the kind and in procuring definite and clear findings from such a meeting the tax thrown upon the chairman is great, and unless he is an experienced man of affairs there are liable to be confusion and some display of temper from members. The concluding night was not without such indications. It was understood, however, that the motions mentioned above were carried by a majority of the members present. The future action or inaction of this new association will be watched with much interest—it is essentially a practitioners' association and has been taken up warmly and almost unanimously by the medical men in Edinburgh and Leith and the capacity of the practitioner for wise and combined action is on its trial. Probably in no place could such an association have more favourable conditions in which to develop satisfactorily than Edinburgh and Leith provide. On Saturday, Dec. 12th, the association is to have a smoking concert.

*The End of the First Term of the Winter Session.*

Many old students of the University of Edinburgh will be interested to know that the division of the winter session into two terms takes practical effect this winter. The first term ended on Wednesday, Dec. 9th, and the second term will not begin until Tuesday, Jan. 5th. Professional examinations are held during the first part of the Christmas vacation, in accordance with the new regulations.

*Royal Medical Society of Edinburgh.*

At Melbourne Place, Edinburgh, on Nov. 27th, Mr. J. G. Nicholson read a paper on "Alcoholism and Drug Habits." The drugs dealt with in the course of a very interesting paper were alcohol, opium, cocaine, ether, chloroform, and tobacco. Dr. Laurance described four cases of labour complicated by flat pelves, and detailed the treatment which had been adopted in each case. Cæsarean section was successfully adopted in one case; the remainder had of necessity to be treated by other methods, and in none of these was the child saved.

*Medical Inspection and Cleanliness in Schools.*

At a recent meeting of the Glasgow and West of Scotland Mistresses' Association an interesting discussion took place regarding medical examination of scholars as viewed from the teacher's standpoint. Those members of the association who had had experience of medical inspection gave it as their opinion that, as conducted at present, it was unsatisfactory. It involved for the time being considerable disorganisation of the work of the school, laid a heavy burden of clerical work on the teacher, and the results were practically *nil*. Very little attention was paid by the parents to the medical man's recommendations, and as there is no power of compelling such attention the elaborate health schedules simply resolve themselves into a supply of statistics. It had been hoped by those concerned that the medical inspection would have been an aid in the direction of cleanliness. Unfortunately it had had no such effect. Further discussion showed that the visits to schools by women sanitary inspectors were of considerable value as a check on excessively filthy conditions, but there was a normal state of untidiness and dirt found amongst poor children which it was agreed was unnecessary and due to carelessness and laziness and to the tacit acceptance by the general public of dirt as synonymous with poverty.

*Glasgow Western Infirmary.*

At the annual meeting of the supporters of the Glasgow Western Infirmary held last week attention was drawn to the fact that there was an increasing demand for hospital accommodation, there being 500 patients awaiting admission. It has been possible during the year to meet the ordinary expenditure without encroaching on invested funds, but that has been possible only because the extraordinary income—which must always be a precarious source of revenue—has been much above the average. It is fortunate, also, that during a year of commercial depression the ordinary income has not decreased. Still, as long as it is nearly £15,000 short of the ordinary expenditure it is obvious that the financial position is unsatisfactory. Plans have been prepared for a further extension of the infirmary but the directors have not at present enough money in hand to proceed with it. In the meantime, however, an addition is being made to the nurses' homes which, while needed at present, will also prove sufficient for the requirements of the further extension of the infirmary.

*Braemar Parish Council: Appointment of Medical Officer.*

The half-yearly meeting of the Crathie and Braemar parish council was held on Dec. 2nd at Braemar. The committee appointed to secure a medical officer for the parish handed in its report. It recommended that Dr. Forsyth, a graduate of the University of Edinburgh, who was now resident in the village, should be appointed. This was ultimately agreed to by 6 votes to 2.

*Dundee Asylum Farm.*

At a meeting of the Dundee district lunacy board held on Dec. 2nd the farm committee reported that Captain Clayhills Henderson, of Invergowrie, R.N., had offered a new lease of Whitebaston Farm for 22 years at the present rent of £300. He would contribute £300 towards alterations and renewals, provided the board paid him an extra annual sum of £15 and that any further expenditure above £300 would be paid by the board. It was resolved to accept the offer.

*Death of Dr. William Paterson of Inverurie.*

Dr. William Paterson died at his residence, Ardennan, Port Elphinstone, on Nov. 28th. He retired from active practice about six years ago and had been in weak health for some time. Born in 1842, Dr. Paterson after a brilliant career at the University of Aberdeen graduated M.B., C.M. at the early age of 21 years and afterwards obtained his M.D. degree. He went to Inverurie in 1864 as assistant to the late Dr. Thomas Thomson and ultimately succeeded to his practice. Dr. Paterson held numerous local appointments and was a keen Volunteer and musician. For a number of years he acted as President of the Inverurie Musical Association, and at the time of his death was president of the Inverurie and Garioch Savings Bank.

Dec. 9th.

## IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

*Itinerant Instruction in Ireland.*

IN the present transition stage of education in Ireland—general, university, scientific and sanitary—the appreciation which itinerant instruction has received in the report of the county of Galway (joint) technical instruction committee to the Galway Council and Ballinasloe Urban Council possesses a special and very important interest. In the opinion of that committee it holds the field against all competitors. "No feasible alternative system has yet been proposed by which the advantages of instruction in cookery, laundry work, needlework, *hygiene, sick nursing*, and manual work can be given to so great a number of persons, over so large an area, and under the conditions which prevail in this country." And an emphatic compliment is paid to the committee in the report of the department's inspector on the working of the scheme in the county of Galway: "The lecturer in hygiene gave short courses of instruction on the essentials of a healthy existence, the prevention of consumption, and the care of the sick at nine selected centres. The work was facilitated by the clergy and teachers of the county and has done much to alleviate suffering and make the homes of the poor more inviting resting-places." There is evidence

forthcoming from all directions that the apostolic methods of itinerant instruction in hygiene and sanitation which have developed so auspiciously in association with, and in the wake of, the anti-tuberculosis crusade are already producing fruit.

*Completion of Waterworks and Main Drainage System of Howth.*

A new epoch in the sanitary and general hygienic progress of the picturesque locality of Howth has just been ushered in by the completion—and "expert inspection"—of the works designed for the water-supply and drainage of this very ancient village. The scenery and surroundings of Howth have ever proved specially attractive to foreign visitors, and while the electric tramway has made it a convenient suburb of Dublin its wireless telegraph station has given it a privileged position in relation to the distant centres of the world. A remarkable fact in the history of the development of recent Irish industrial activity is that the contract has been completed within a period of nine months less than the stipulated time. This is the more noteworthy as cliffs and crags had to be continuously negotiated; and steam drills, "American shovels," and the whole battalion of instruments of engineering warfare with the strongholds and fastnesses of nature were actively utilised throughout the whole proceedings. Also, ten fountains have been provided in the village and there are 50 hydrants which are placed in the various positions in which danger to property from fire might be anticipated. A circular has been sent out to the householders of Howth (by the contractors, Messrs. McKee and McNally) notifying to them the completion of the waterworks and intimating that connexion should be made forthwith for utilisation of the same. There is every reason to believe that under the new conditions Howth will become one of the healthiest localities within the British Islands.

*Health of Belfast.*

At a meeting of the city council held on Dec. 1st it was reported that for the period from Oct. 25th to Nov. 21st the death-rate was 17·0 per 1000. 38 cases of enteric fever were notified, as compared with 32 in the corresponding period of 1907. In four instances the milk-supply was from the same source, a supply which was promptly dealt with, in order to prevent any danger from further infection. The Local Government Board has asked the council for payment of £1431 10*s.* 10*d.*, the expenses of the Health Commission, less £500 Treasury grant towards the same, and the council has replied repudiating any liability in the matter, but saying that it was prepared to offer, without prejudice, to pay £1431 10*s.* 10*d.*, less £608 0*s.* 3*d.*, the expenses of the chairman, Colonel Harding, D.L., Dr. L. W. Darra Mair, and Dr. A. K. Chalmers.

*The Abbey Sanatorium, Belfast.*

Mr. Robert Hall (physician to the Abbey Sanatorium for Pulmonary Tuberculosis) has presented to his committee a most interesting report of the half year ending Sept. 30th, 1908. During this period 568 patients were treated, of whom 303 left the institution, thus leaving 265 still under treatment. Of those who left 201 were males and 102 were females, and of the total 35 were greatly improved, 165 were improved, 35 were not improved, and 68 were for too short a period in hospital or died. The general average age in years of the above was 30—32¾ for males and 27⅛ for females. The average duration of time in days in the sanatorium was 115½—117 for males and 114 for females. As to occupation among the females, the largest number were housekeepers and spinners, while among the men labourers were by far the largest class. Mr. Hall urges very strongly the necessity of patients entering in an early stage of the disease, and he gives preference for sanatorium treatment to those patients in an early stage. Despite the fact that there are 265 beds in the sanatorium, he has still 85 consumptive patients in the union infirmary who cannot be received in the Abbey owing to want of space. Additional buildings at the sanatorium are becoming daily more urgently needed. All discharges from the Abbey are notified to the public health department, so that the medical officer of health may look after them. Those of the patients who are able are employed in various light occupations, the work in all classes being regulated by the medical officer. The average cost per week of each patient was 11*s.* 8¾*d.*, or if all other charges—viz., establishment, burial, law, repayment of loan, &c.—be added, 16*s.* 9½*d.*, which is remarkably small. The board of guardians of Belfast and its efficient medical officer, Mr. Hall, who was the first Poor-law infirmary medical officer in Ireland to isolate consumptives in a union infirmary, are to be congratulated warmly on the Abbey Sanatorium which is an object-lesson to the rest of Ireland.

*Sir Robert Hart, Bart., G.C.M.G.*

During the past week one of the most distinguished living Ulstermen has been revisiting his native home and has been most cordially welcomed. As an old student of Queen's College, Belfast, Sir Robert Hart was enthusiastically received on the afternoon of Dec. 2nd, when he was presented with an address, and on the next evening he was entertained at a banquet at the College. In reply to the toast of his health Sir Robert Hart gave a most interesting account of his work in China.

*The Queen's University of Belfast.*

At the first meeting of the Senate held in Queen's College, Belfast, on Dec. 4th, Sir Robert Hart, Pro-Chancellor, presided in the place of the Chancellor, the Earl of Shaftesbury, who was unable to be present. The charter of the University having been laid on the table, an executive committee (to carry out the details rendered necessary in connexion with the getting into working order of the University) and a building committee (to inquire what additional buildings are required, to obtain plans for same, with estimates of cost, and to report through the executive committee to the Senate) were appointed. It was agreed to insure the college buildings.

*Municipal Elections in Belfast.*

The coming elections for the city council, Belfast, in January are likely to be contested sharply, and in most cases the health question is being made a test one. In Ormeau ward Alderman J. D. Williamson, M.D. R.U.I., chairman of the police committee, and in St. George's ward Dr. Henry O'Neill, chairman of the markets committee, are going forward for re-election. They have each in their separate departments done good work.

*Outbreak of Enteric Fever in Co. Leitrim.*

An alarming outbreak of enteric fever has occurred in the Glenfarne district, there being 50 cases in hospital. Dr. B. A. O'Flynn, acting medical officer of health, in a report to the Manorhamilton district council on Nov. 5th, said he was forced to the conclusion that the alarming proportions which the epidemic had assumed were undoubtedly due to infection by separated milk. The Local Government Board has urged the necessity of putting into force the Dairies and Cowsheds Order and appointing a competent veterinary surgeon. This latter advice was acted on and it was decided to appoint such an official.

Dec. 8th.

## PARIS.

(FROM OUR OWN CORRESPONDENT.)

*The Hot-air Douche.*

M. Dausset and M. Laquerriére communicated a paper at a recent meeting of the Society of Medicine which dealt with the cases of 70 patients treated by a rapid current of hot air, a method which seemed to them superior to other ways of applying heat for the production of hyperæmia. They were able to confirm the good results already obtained by other observers in such diseases as neuralgia, rheumatism, eczema, and hydrarthrosis, and they endeavoured in their paper to define the indications for this method of treatment. Finally, they claimed to be the first to have made observations with regard to this method in the conditions hereinafter mentioned. In suppurating wounds the hot-air douche rapidly brings the suppuration to an end and causes cicatrisation. In cases of stiff joints the periarticular œdema is absorbed and the hot air causes an analgesia which permits of the joint being moved from the first. In chronic cases of radio-dermatitis the itching disappears while the atrophy of the skin is much improved. M. Borns asked whether the treatment had been used in sciatica. M. Laquerriére replied that he had found it give good results in cases of simple sciatica if

combined with general treatment, but in chronic cases its utility was doubtful.

*A New Clinic.*

Dr. Huchard, the well-known physician to the Necker Hospital and a specialist in diseases of the heart, is just about to resign his post at the hospital owing to the age limit. He recently opened a clinic in the Vaugirard quarter and the official opening took place on Nov. 17th in the presence of many pupils and friends. A number of patients attended on the first day, when M. Huchard said that the opening of the clinic would fill a gap, for hitherto no clinic for diseases of the heart was to be found. M. Albert Robin, who followed, took occasion to congratulate M. Huchard on his new departure.

*Treatment of Cancer by Injections of Formol.*

At a meeting of the Academy of Medicine held on Nov. 24th M. Laurent stated that after researches extending over many years he had come to the conclusion that a very good method of treatment for malignant tumours was to "formalise" them by enormous doses of formol by injection. The dose varied from 5 to 60 grammes. Part of the tumour sloughs and the remainder undergoes absorption, thanks to the reaction set up by the drug. The method requires caution in its use and external growths alone are suitable for its employment. Moreover, the patients should not be too run down or they will not be able to stand the somewhat violent reaction which occurs.

*The Treatment of Hæmorrhage by Subcutaneous Injection of Gelatin.*

At a meeting of the Hospitals Medical Society held on Nov. 20th M. Chaput gave an account of some results which he had obtained in the treatment of secondary hæmorrhage by injections of gelatin, as advised by Carnot. In one case, that of a patient operated upon for uterine fibroma, and in whom hæmorrhage occurred owing to a ligature slipping, M. Chaput was easily able to gain command of the hæmorrhage by the use of gelatin. In another patient who had undergone total hysterectomy the operation had left sundry oozing surfaces, the hæmorrhage from which could not be arrested until recourse was had to injections of gelatin. He cited three similar cases in which the gelatin had had the same effect. In cases of secondary hæmorrhage, instead of following the usual course of opening up the wound at once, M. Chaput advises the use of a subcutaneous injection of gelatin and the hæmorrhage will stop and further steps can be taken later with a much greater chance of success than by following the ordinary method. Blood, of which the ordinary coagulation period is seven minutes, clots in three minutes after an injection of gelatin; the dose is about 5 grammes of gelatin in a 1 per cent. solution. The method is very useful in cases of ruptured tubal pregnancy.

*Medical Treatment of Pelvic Disorders.*

At a meeting of the Academy of Medicine held on Nov. 24th M. Richelot referred to the charge which is so often made against the medical profession of having recourse to surgical intervention in cases of pelvic affection without trying medical therapeutic measures first. He laid stress upon the harmful effects which this method of procedure may have in women, especially when they are young. In some cases of pelvic infection where operation would seem to be necessary there may be even greater reasons for non-interference. In patients of the "neuro-arthritic" type who suffer from uterine congestion, dysmenorrhœa, or hæmorrhage, both physicians and surgeons are often much troubled as to treatment. There are, however, everyday methods of medical treatment out of which neither patients nor practitioners get the full benefit. Take, for instance, the use of hot water; not half enough stress is laid upon the quantity used, the necessity for a high temperature, and the manner of use. As for the external douche, it would seem to be reserved entirely for neurologists and that the gynæcologists have doubts as to its utility. There are two main methods of applying hot water, the one being the vaginal douche and the other the external douche. To obtain the best results from the former from 80 to 100 litres should be used, and the external douche should be employed under the two forms of a general douche and a perigastric douche. This practically necessitates the use of special apparatus.

Dec. 8th.

## BERLIN.

(FROM OUR OWN CORRESPONDENT.)

*Experiments on Artificial Abortion.*

BEFORE the Berlin Gynæcological Society Dr. Hofbauer read a paper on Artificial Abortion produced by the Administration of Cholesterin. The experiments, which were made by Dr. Hofbauer on pregnant rabbits, were based on the existence of a physiological antagonism between cholesterin and lecithin and on the grounds that the cells of the fœtus contain a great quantity of lecithin and chemical alterations of the lecithin are harmful for the development of the fœtus. Cholesterin, the antagonist to lecithin, was administered to pregnant rabbits in the form of a 5 per cent. solution and given together with the ordinary food. It had been stated previously by other authors that cholesterin given by the mouth is absorbed fairly easily and is later found in the blood plasma. The experiments were made on three pregnant rabbits. In the first an animal in the middle of its pregnancy was employed; 10 cubic centimetres of cholesterin were given three times a day, the result being that the animal was delivered of two dead fœtuses on the fourth day. Necropsy showed that the cellular tissue had a brownish-red hue just as in a macerated fœtus and that the pleura also was ulcerated in certain places. The second animal was nearly at full term and cholesterin was administered in the same way as in the first case. Since by the eighth day no delivery had taken place the uterus was opened under narcosis and three fœtuses were found, of which one was dead. The skin of this fœtus proved to be flaccid, the cellular tissue was blood-stained, and the internal organs had a pale greyish-red colour. The placenta of the dead fœtus was of greyish-yellow colour and of an abnormally solid texture; it was dry and smaller than that of the other fœtuses. No structure was visible in the placenta save in the centre, its substance being very homogeneous and opaque with yellow spots scattered about in it. On microscopical examination the tissue proved to be full of cells, so that it almost looked like granulation tissue instead of the characteristic placental tissue; the vessels were empty and showed a proliferation of the intima. In some parts the tissue had become a structureless mass with streaks of fibrin and cellular tissue and small hæmorrhages. The third animal was also nearly at full term. On the fourth day after treatment three dead fœtuses were removed by Cæsarean section and showed similar changes, but in a higher degree than in the second experiment. It follows from the above experiments that by the administration of cholesterin severe degenerative changes were produced in the placenta which seriously affected its function, and it is probable that these changes were due to a destruction of the lecithin. Dr. Hofbauer suggested that the maceration of the fœtus in syphilis may be proved to have a similar cause—viz., the destruction of lecithin by the serum of the syphilitic mother. He alluded to the researches of Professor Wassermann who found in syphilitic serum toxic substances by which lecithin can be decomposed.

*A Question of Medical Ethics.*

As already mentioned in these columns the Union of the German Medical Press has taken energetic measures against authors who write articles to recommend new chemical compounds and other preparations in trade interests. Some of these authors are alleged to report cures in cases which as a matter of fact have never existed, and lately a medical journal exposed one of these authors by publishing two articles which he had written within three months of each other and which were couched in almost the same terms. In these he had cited the same cases in recommendation of two different compounds. But some German chemical factories not only employ certain medical men to write puff articles for them, they also quite correctly approach the directors of medical clinics and institutions, asking them to give a fair trial to certain new compounds. As they used to offer fees for the researches made in the clinics and laboratories the question was put whether it would be in accordance with the rules of medical ethics to accept such fees. The editor of the *Deutsche Medizinische Wochenschrift* has recently made a collective investigation by asking the opinion of chief physicians of hospitals and directors of medical clinics and institutions on this matter. The questions asked were: Did

you or your assistant ever receive a fee from a chemical factory either for making an experimental or a clinical trial of a compound? If so, was the fee received for your personal benefit or for some charitable institution connected with your hospital? If not, do you think it proper to accept such a fee? The opinions given by the medical men in question have varied considerably. Professor Curschmann of Leipsic wrote that he never tried compounds for, or gave a certificate to, a chemical factory. He publishes reports in the medical press exclusively and expressly forbids chemical manufacturers to circulate copies of these reports as advertisements. Professor von Noorden, on the other hand, declared that he had often stipulated with chemical factories that they should pay a certain sum to some charitable institution for the trial of compounds. One half of the sum was to be paid before the trial began and the other half only when the trial was successful; but he had never accepted a fee for his personal use. Professor Ehrlich of Frankfort said that a distinction must be made between the trial of compounds on patients and experiments in laboratories. The latter entail heavy expenses and he considers that it is only fair for chemical factories which derive so much advantage from these experiments to bear at least a portion of the expenses. The Union of the Medical Press was not unanimous on the subject but finally the majority agreed that whilst it was in the interests of medical science that new compounds should be thoroughly examined by competent authorities, the respective experiments entailed so much time and sometimes expense that it would be unjust to forbid those who undertook them to receive fees for their work. The editors of medical journals were, however, asked to insert no articles concerning compounds which are not by responsible authors and to reject any article which bears a trace of partiality. Authors of such articles will be put on the "black list" according to the decision passed at the last meeting of the Union of the German Medical Press.[1]

*Paying Wards in Municipal Hospitals.*

Some members of the municipal council have put down a motion proposing the erection of paying wards for the better-class patients in the municipal hospitals similar to the wards which exist in other hospitals. The medical press objects to this proposal. It is said that in the non-municipal hospitals (which in Berlin for the most part belong to religious corporations) the fees paid by the better-class patients are just sufficient to cover the expenses of the patient's stay in the hospital, but that the hospital physicians and surgeons who attend these patients do not receive a farthing from the sum paid by them. If these patients were received into a private sanatorium they would have to pay not only higher fees for their board and lodging but also fees to their medical attendant, and as they belong as a rule to the well-to-do classes there is no reason to give them facilities for gratuitous medical attendance. The system obtaining in the hospitals belonging to religious and other corporations has always been resented by the medical profession because it prejudices their private practice and there is no need to extend it to the municipal hospitals. Well-to-do patients desiring to have their home comforts during their illness should be treated in private nursing homes, which are abundant in Berlin, and not in municipal hospitals supported by the ratepayers. The beds occupied by the proposed paying wards had better be devoted to ordinary patients, especially as the existing number of beds at certain times of the year is not sufficient to meet the requirements. In every case the medical staff ought to be allowed to recover fees from their patients. This motion has not yet been discussed and it is to be hoped that the council will not agree to it.

Dec. 8th.

## SWITZERLAND.

(FROM OUR OWN CORRESPONDENT.)

*Sunshine in the Treatment of Surgical Tuberculosis.*

Dr. Oscar Bernhard of St. Moritz in the Engadine has just published his experiences of many years on the therapeutic influence of sunlight in the treatment of simple and infected wounds, ulcers, tuberculosis of the skin, glands, joints, and bones, of cancer of the skin, and deep-seated syphilitic ulcerations. In a great number of such cases sunshine directly applied was of great help in determining a cure. A number of good illustrations prove this point. The high altitude (1800 metres, or 6000 feet, above the sea level) increases the beneficial effect of the sunlight treatment, and the excessive dryness of the air must also take some part in it. The active hyperæmia produced by the rays of the sun doubtless assists in the process of healing. The bactericidal effects of sunshine were proved by Downes and Blunt (Proceedings of the Royal Society of London) so far back as 1877. Dr. Bernhard employs pliable metallic funnels to treat fistulæ of different sizes and depth. He refers to the good results which Dr. Rollier has obtained by heliotherapy. In the *Revue Médicale de la Suisse Romande* of Sept. 20th, 1907, Dr. Rollier reports about 110 cases of surgical tuberculosis treated since 1903 at Leysin (altitude 1450 metres = 4800 feet), above Aigle in the canton of Valais, in his clinique on lines developed by Dr. Bernhard. Operative interference was reduced to a minimum and the results obtained were most gratifying. Dr. Rollier publishes ten new cases of complex tuberculous disease of joints and bones treated with remarkable success.

*A Zürich League against Consumption.*

On Nov. 29th at a meeting in the town-hall of Zürich, which was attended by more than 300 persons of both sexes, a cantonal league against tuberculosis was founded. Dr. Staub, physician of the canton of Zürich sanatorium at Wald, spoke on medical measures for fighting this dire disease which still annually causes some 4500 deaths in Switzerland, the rate of mortality being 18 in 10,000. Pastor Reichen of Winterthur enlarged on the social dangers and financial losses caused by the "white plague." Mrs. Corradi-Stahel referred to antituberculous educational methods in family life, whilst Dr. Hauser, president of the Cantonal Medical Society, gave full details about the present and future programme.

Zürich, Dec. 8th.

## NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

*The Emmanual Movement.*

THE medical profession and the public are agitated over the introduction into the practice of medicine of what is called "The Emmanual Idea," which had its origin in the Emmanual Church of Boston of which the Rev. Dr. Worcester is rector. The rector recently explained the origin of the Emmanual method to a New York audience composed largely of clergymen, physicians, and "Christian Scientists," the object of the lecture being to establish clinics in connexion with churches for the treatment of diseases by this method in this city, on the plan of the clinic in operation in the Emmanual Church of Boston. The rector stated that seven years ago he and Dr. S. Weir Mitchell of Philadelphia, the well-known specialist in nervous diseases, were discussing the growth of "Christian Science" and the latter suggested that they should together evolve a system which would be adapted to present conditions. After years of thought the rector finally evolved the idea which, after consulting "one of the best known physicians" of Boston, was worked out by him and his assistants in the Emmanual Church. He stated that "one of the most eminent physicians of New England" had come down to start the work and other members of the medical faculty are now working with the clergy in the clinics. He added that since the work was begun 2200 persons had been treated and many had been greatly benefited, while none had committed suicide. The method of treatment is that of suggestion. Already the "Emmanual Idea" has found great favour with the episcopal clergy of New York and has been publicly approved by several of the most prominent specialists in nervous affections. A clinic is about to be established in connexion with St. Mark's Church, one of the oldest episcopal churches in the city, and St. George's Church is likely to organise another clinic.

*The Army Medical Department.*

The Surgeon-General of the Army, Dr. O'Reilly, has issued his report and on Jan. 14th next will retire, having

[1] See THE LANCET, August 17th, 1907, p. 483.

reached the age limit. He will be succeeded by Colonel George H. Torney, one of the most efficient officers of the army, who will have upwards of five years of service before retiring on account of age. He has had a long and brilliant career in the army. During the Spanish-American war he prepared for active service the hospital ship *Relief* and commanded her on the removal of the sick and wounded from Cuba and Porto Rico. He was placed in charge of the sanitary work at San Francisco on the occurrence of the earthquake which destroyed that city and was highly commended by the authorities for his efficiency and his success in managing the details of the work of sanitation. The annual report of the Surgeon-General shows that the death-rate from all causes was 5·81 per 1000 of a mean strength of 54,949. The most important among the causes of death were tuberculosis with a ratio per 1000 of 53; pneumonia, 44; cerebro-spinal fever, 38; enteric fever, 29; and heart diseases, 27. These rates are higher than for the preceding year, except tuberculosis, which is considerably lower. The most important disease affecting the efficiency of the army was the venereal, the admission rate being 196·62 per 1000.

*Laws against the Marriage of Epileptics.*

There is much agitation in favour of prohibiting the marriage of epileptics by legislation and in several States laws have been passed to that effect but they do not accomplish the results sought. The latest report is from the State of Kansas which passed such a law many years ago. Dr. Perry, superintendent of the State Hospital for Epileptics, finds that 30 per cent. of the male epileptics over 21 years of age are married and 25 per cent. were married after the disease was developed. Of the female epileptics over 18 years of age 56·8 per cent. were married and 40 per cent. had married since they became epileptic. These facts prove that the law is practically ignored by officials. It is urged in defence of clergymen that there are large numbers of cases in whom the disease assumes such forms that even the friends of the epileptic and the epileptic himself may not be aware of the occurrence of seizures. Dr. Perry recommends that a penalty should be attached to failure on the part of a licensed official to investigate each case in which he performs the ceremony of marriage.

*Responsibility for Death by Chloroform Unnecessarily Administered.*

The United States Circuit Court, in New York, had a case where an employee sustained one of the simplest and least complicated forms of dislocation at the shoulder-joint, but the patient died from the effects of the chloroform administered for its reduction. The company which employed the patient was not held liable for the death, the jury having found that the accident and injury (dislocation caused by the accident) had nothing to do with causing or producing the death, but that the subsequent unnecessary administration of chloroform caused it. The court held that the surgeons and attendants in a hospital are not immune from the charge of being the third person causing death, and not immune from the charge of causing the death of the patient therein by their own independent and wrongful acts, even if connected with a necessary operation. If they are, then they may experiment with and on every patient and unnecessarily give dangerous drugs and unnecessarily perform dangerous operations, and if such drugs and operations, so unnecessarily given or performed, kill, and are the sole cause of death, then the persons whose negligence caused a slight injury, requiring some slight operation, must answer for the consequences of such experiments and operations and respond in damages for the death on the ground that their negligent act set the surgeons and attendants in motion or gave them an opportunity to experiment with death-dealing instrumentalities. In legal contemplation, negligent parties must be responsible for injury, necessary medical treatment, or surgical operations, and mere errors of the physicians and surgeons in doing necessary things, as all these are natural and probable results, happenings; but the court knows of no holding that unnecessary treatment with dangerous drugs, which the jury found this was, is either the natural or probable consequence of injury.

*Leprosy-like Disease of Rats in San Francisco.*

The campaign against rats to relieve San Francisco of the bubonic plague has revealed the presence of a considerable proportion of rats affected with leprosy, or a disease closely resembling that form of plague. These rats were found in greatest numbers in that part of the city occupied by the butcher shops and meat-packing establishments. None of the infected animals came from stables and warehouses where the rats infected with the plague are more often found. The anti-rat crusade promises to rid that city of two plagues.

*Tuberculosis among the Foreign-Born.*

There has long been an opinion among medical men that Irish-born people in this country were more liable to tuberculosis than those born of parents of other nationalities. This subject received some attention at the International Congress recently held at Washington. The prevailing opinion as to the liability of the Irish immigrants to develop tuberculosis was confirmed, but it was shown that children born of Irish parents were more susceptible to the disease than their foreign-born parents. It appears that the Italians and the Greeks are more liable to tuberculosis in this country than in their own country. It is susceptible of demonstration that the Italians do not bring the disease here but that they acquire it in this country. The same statement is believed to be true of the Greeks. The immigrants from both countries are for the most part peasants and of a hardy class, but when they enter this country they seek occupation in cities and live under the most unhygienic conditions. In striking contrast with the immigrants from Southern Europe in their susceptibility to tuberculosis, and also the Irish, are the Jews, who though similarly exposed to the unfavourable conditions of city life and often infected with tuberculosis, yet have a resisting power which gives a small comparative mortality. The only explanation which has been made of the immunity of the Jew is that he has for centuries been accustomed to urban life and therefore is acclimatised.

Nov. 27th.

## NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

*Garlic.*

FROM time immemorial garlic, which is grown all over India, sold in every bazaar, and used very commonly as an ingredient in curries, has had a high reputation in domestic medicine and also in the ancient systems of the Hindu writers. It is recommended by the earliest of these authorities—Shushruta—for improving the voice, intellect, and complexion, promoting the union of fractured bones, and helping to cure nearly all the ills that flesh is heir to. Its use is by no means confined to India; in Ireland it is taken as an infusion together with whisky in colds and bronchitis, and farmers there and elsewhere apply it as a poultice in anthrax or "blackleg" in cattle. It was at one time officially recognised in the British Pharmacopœia and still maintains a place in that of the United States. It is known to contain a volatile oil—sulphide of allyl—to which its many virtues are attributed. In the *Indian Medical Record* there is a report by Dr. Minchin, Captain E. Blake Knox, R.A.M.C., and Dr. Kaviraj A. C. Bisharad on the use of garlic as a preventive of tuberculous disease. Several years ago an Italian physician, Dr. G. Cavazzani, made experiments by feeding guinea-pigs with garlic and then infecting them with tubercle. The results went to show that the guinea-pigs treated in this way were to a certain extent immune to tubercle, but the number of animals used was too few to make it possible to draw definite conclusions.

*"Ratting."*

In a report on rat destruction in the Punjab submitted to the local government Major S. Browning Smith, I.M.S., maintains that of all antiplague measures this is by far the easiest to carry out and the most readily acceptable to the people. As to methods, the use of traps has the great advantage over poisoning that it can be carried on continuously and thus be a permanent instead of a temporary measure. Experiments have been made with various substances for producing an infective disease among rats not communicable to man, but they have not been very successful. The rats that actually ate the virus died but no fatal epidemic ensued. Poisoning with phosphorus was equally effective and much less expensive. The results quoted

in the report are certainly encouraging. Out of 154 villages in a "ratted" area 75 remained free from plague. Of 86 in a "non-ratted" area none escaped. In other cases where "ratted" villages were attacked the plague incidence was only 1·14 per cent., while in the "non-ratted" villages it was 5·18 per cent. One great advantage of "ratting" is that it is a preventive that can be carried out when plague is not present, involving as it does so little interference with the customs and comfort of the people. This cannot be said either of evacuation of dwellings or of inoculation. These are of the greatest value, but experience shows that the people generally do not accept them until the epidemic has appeared and the danger is imminent. In towns a permanent system of rat removal by traps should be carried on as part and parcel of the ordinary sanitary routine, supplemented by occasional poisoning campaigns. When signs of infection appear the traps can be concentrated and the spread of the epidemic arrested. If reliance is placed upon poisoning it should be renewed every six weeks or two months throughout the plague active season.

*Plague.*

The official report on plague in Burma for October shows a slight decrease in the figures—viz., 156 cases with 141 deaths, as compared with 178 cases with 164 deaths in September, and 312 cases with 299 deaths in August. The greatest decrease is reported from Rangoon, where the number of deaths has fallen from 116 in August and 33 in September to 17 in October. The most unsatisfactory feature in the report is the recrudescence of the disease in Mandalay and Meiktila, where 30 and 41 deaths occurred respectively as compared with 11 and 20 in September.

*Deaths from Poison.*

The report of the Chemical Examiner to the Punjab Government for 1907 affords disquieting reading. It establishes 355 cases of human poisoning during the year. Arsenic, which is commonly used for homicidal purposes, was detected in 48·21 per cent. of the total cases, as compared with 54·22 per cent. in 1906. Opium comes next and datura third. Considerable alarm among villagers was caused by persons maliciously throwing into wells material with regard to the nature of which extravagant rumours were circulated. In several instances the material seized in the possession of these people was submitted for examination, but in all cases was found harmless, and the object in view was apparently only to act on the imagination. In cases of suspected organic poisoning where the body is cremated the ashes, &c., are sometimes sent for analysis. It is stated to be quite useless to send such cases for analysis as the strong heat of the funeral pyre destroys all chances of detection of this class of poison. Arsenic also accounts for the greater proportion of cases of cattle poisoning. The recent introduction of rules under the Poisons Act should render it easier to trace and to convict persons who make use of poison for committing homicide, and they will also, no doubt, do something towards rendering it more difficult to purchase poison. It is too early as yet, however, to judge of the effect produced by these rules.

*Redistribution of Principal Medical Officers.*

Disquieting rumours are abroad that the new principal medical officer in India proposes changing the present distribution of principal medical officers of divisions and brigades throughout India and should the proposed redistribution occur it will cause considerable hardship on many of the present incumbents. No less than two redistributions all round have been made within the last few years and it was thought that when the divisional basis was arrived at by Surgeon-General Gubbins two years ago that finality had been reached. His successor, however, apparently deems another change of *personnel* necessary. Senior officers of the Indian Medical Service settling down in the administrative appointments of the army often after long years of civilian practice do not find it by any means a sinecure to enter military employ and they often find it extremely difficult to master the intricate military medical regulations relating to British troops. It also takes considerable time and labour for a principal medical officer to become acquainted with the stations and troops of his charge and naturally heart-burnings occur when a "redistribution post" is suddenly sounded at Army headquarters.

*Sick Leave for Officers.*

An order that is considered somewhat stringent has recently been issued from army headquarters forbidding sick leave to the United Kingdom to be granted to officers unless in very special cases. Following the new scheme limiting the number of British soldiers invalided home and recommending the cool climate of the Indian hills as a convalescent resort instead—a scheme which proved very successful last year—it has now been decided to apply the same principle to the British officer. Leave to England on medical certificate used to be one of the few perquisites of that overworked and badly paid member of this community and it is to be regretted that the most excellent tonic—sea voyage and a rest in the old country—is now to be denied to him. While fully agreeing as to the undesirability of the invalided soldier returning to his home, often to live on beer and frequently with but little food in some insanitary slum in a great city of the United Kingdom, when such a state is contrasted with his surroundings in a military hill sanatorium on generous diet in India, the case of British officers is obviously very different.

*Invaliding British Troops.*

The complete responsibility of making all embarkation arrangements for the dispatch of invalids to England has now been fixed on the principal medical officers of the two embarkation ports—Bombay and Karachi—and each principal medical officer has been given a special medical officer of the Army Medical Service of field rank to assist him as staff embarkation medical officer. In previous years the general officers concerned made these arrangements along with the routine dispatch of the ordinary healthy rank and file; it was thought, however, that the change that has now been introduced would be more conducive to the comforts and medical treatment of invalids.

Nov. 5th.

## NOTES FROM CHINA.

(FROM OUR OWN CORRESPONDENT.)

*The Death of the Emperor and the Empress Dowager.*

IT is probable that before the arrival of these notes further light on the recent tragedy in the Imperial Palace will have been telegraphed home. The absence of official bulletins as to the course and termination of their illnesses has left much room for conjectures and rumours as to the real causes of the deaths of their Majesties. The Emperor was never of robust constitution. In personal appearance he was pale, anæmic, about 5 feet 6 inches high, with thin features and *les yeux cernés*. The strong mentality of the Empress Dowager and the heavy duties of Court life, from which there was never any respite, must have pressed hard on him, for the Imperial day in China is a long one, beginning as it does at 4 A.M. and lasting till the afternoon. Till recently he was treated by Court physicians of the "old school" on empiric lines, but as there was no improvement his case was put in the hands of two Chinese foreign-trained medical men. It was not long, however, before they in turn were dismissed and the old-style Court physicians reinstated. No definite symptoms have ever been made public, but from all that can be gathered the diagnosis points to neurasthenia with loss of general vaso-motor tonus and cardiac weakness. With regard to the Empress Dowager, she had been ailing for some months past and had felt her strength scarcely able to cope with the heavy duties of State. She was 74 years old and had lived a strenuous life. There have been hints of foul play which have been bruited abroad, but I am in a position to say that, according to authentic accounts from high officials who were in close touch with their Majesties during their last days, there are no grounds for supposing that their deaths were otherwise than natural, though the treatment in both cases left much to wish for. The facts are these. The Emperor had been growing steadily weaker since the beginning of last summer. Latterly swelling of the lower extremities set in and he was unable to rise. The contemplation of a successor to him had given the Empress Dowager much anxiety and when on her birthday she ate some over-ripe fruit, from which a dysenteric attack set in, she rapidly lost strength. While in this condition she despatched her Prime Minister (Prince Ching) to her tomb (some days' journey from Peking) to see that all

was ready for her but recalled him owing to the grave state of the Emperor. On the evening of Prince Ching's return the Emperor died and at 2 A.M. the following night she called together the Grand Council who knelt round her bed and settled with her there and then the selection of the new Emperor. Two hours later the Grand Council assembled to discuss some other important points but she could only wave them aside and say that she was too weak to speak. From that point on she gradually sank, the dysenteric symptoms persisting to the end. It is interesting to note that the Court physicians have all been officially fined for their lack of ability to save their august patients. This is in accordance with precedent and is part of the custom by which the physicians draw salaries while the patient remains well but cease to do so as long as there may be any illness.

*Plague in North China.*

The outbreak already noted at Tongshan has, as was expected, subsided with the onset of cold weather and the death-rate has dropped to an average of one or two cases a day. There will be keen cold weather for the next four months with the thermometer registering as much as 25° of frost and a breathing space will be given to the sanitary authorities to set their house in order and have all arrangements made to meet a probable recrudescence next spring. The Chinese Engineering and Mining Company have engaged the services of an Indian Medical Service officer from the plague laboratory at Bombay, and are arranging for him to coöperate with the local public health staff. A feature of the recent epidemic has been a much higher percentage of pneumonic cases than has been met with in India or Hong-Kong. The proportions of the different varieties have been as follows: bubonic, 50·9; intestinal, 17·0; pneumonic, 11·6; and septicæmic, 11·5. The Chinese expectorate everywhere—in their houses and shops as well as in the open—and the difficulty of preventing the native miners from spitting while down in the mines has made the local sanitary authority (a French medical man in the employ of the Chinese Government) put an embargo on the export from Tongshan of coal, bricks, and cement. This is an interference with trade which is too important to be borne lightly and measures are being devised to have the prohibition removed. So far the great populous centres of Peking and Tientsin have remained plague-free. Dr. Moorhead, the company's medical officer, has worked hard to limit the spread, and Dr. J. M. Atkinson, the principal medical officer of Hong-Kong, has been on the scene of the epidemic giving much helpful advice.

*The Heathen Chinee.*

At Shanghai recently a Chinese doctor and his two assistants were charged with extortion from native drug shops. Their plan was for one to visit a shop and to buy 20 cents. worth of medicine. A few days later the three men would go to the shop and complain that their business had been ruined in consequence of the medicine having killed their patient. The drug was always of a harmless nature, but fearing prosecution by the indignant doctor the druggist paid up freely. On seven occasions this plan had succeeded, but at length their fame spread and complaint was made with the result that the doctor was sentenced to 12 months' imprisonment and his assistants got six months each.

Peking, Nov. 17th.

# Obituary.

## WILLIAM ALFRED ELLISTON, M.D. ST. AND., M.R.C.S. ENG., L.S.A., J.P.

ON Nov. 27th Dr. W. A. Elliston of Ipswich, one of the best known of the medical profession in East Anglia, passed away. He was the son of William Elliston, also a medical man, who with many other boys had been an apprentice of John Denny, a retired naval surgeon, who had a great reputation for training youths for the medical profession. Among Denny's pupils were Gull and George Sampson who became in process of time W. A. Elliston's uncle. When the latter in his turn entered the medical profession he commenced his training by apprenticeship to his uncle and when out of his articles he entered the medical school of Guy's Hospital. In 1862 he graduated at St. Andrew's and also took the diplomas of M.R.C.S. Eng. and of L.S.A. Lond. Owing to his father's failing health he had at once to take up the family practice and on his father's death he was elected to various public appointments, such as medical officer to the Ipswich workhouse and to the Poor-law Children's Home. In 1871 he was elected on the honorary staff of the East Suffolk and Ipswich Hospital. He took great interest in the surgical side of his profession and was an active advocate of Listerian principles. For the next 30 years Dr. Elliston led an exceedingly busy life, for besides his ordinary practice he was in constant request as a consultant. He took a deep interest in the British Medical Association, being for 20 years President of the East Anglian branch. When that branch resolved to invite the Association to meet at Ipswich in 1900 Dr. Elliston was unanimously nominated President by the branch and the nomination was duly confirmed by the Council.

The Ipswich meeting is memorable for two things, the one that at it our present King, then Prince of Wales, was elected an honorary member of the Association, and the other that it was the occasion for the appointment of the constitution committee, the outcome of which was the representative body. Dr. Elliston's interesting presidential address dealt with the historical aspects of medicine and he naturally laid special stress upon the many worthies of science who were connected with East Anglia. Such were William Gilbert, Sir Thomas Browne, the two Pagets, Sir William Gull, and Sir Thomas Watson, to name only a few. Dr. Elliston was a great believer in the theory that every medical man should have some interest outside his immediate professional work, and he did not stop short at theory. He was a member of the county bench of magistrates, and early in his career he furthered the cause of the Ipswich Working Men's College, at which institution he used to give lectures in hygiene, chemistry, and physics with popular illustrations. He was one of the founders of the Colonial College at Hollesley Bay which came into existence in the early "eighties." But although a good many pupils passed through the college it was not a financial success and the buildings are now the headquarters of the Central Unemployed Committee. Dr. Elliston was one of the founders of the Felixstowe golf club and of the Ipswich golf club, while in his younger days he hunted. He was a good swimmer and fond of walking. He retired from active professional work in 1901 and settled at Felixstowe, a place in which he had always been interested as a possible health resort. Dr. Elliston was for many years a vice-president and a member of the council of the Medical Defence Union. He was President of the Union in 1905 and 1906.

The funeral took place on Nov. 30th, the first part of the Burial Office being said at the church of St. John Baptist, Felixstowe, and the interment taking place at Ipswich cemetery. A large number of relatives and friends attended, the British Medical Association being represented by Dr. B. H. Nicholson, a member of the council; the Medical Defence Union by Dr. M. Beverley and Dr. E. G. Barnes; the corporation of Ipswich by the mayor; and the East Suffolk and Ipswich Hospital by Mr. Herbert Mason, the chairman.

## ROBERT ALLEN, M.B. R.U.I., F.R.C.S. IREL.

THE death of Dr. Robert Allen took place at his residence, Queen's Elms, Belfast, from pneumonia, after a very short illness, on Dec. 2nd. Born at Portadown in 1869, Dr. Allen was educated at Queen's College, Galway, and graduated M.B. of the Royal University in 1893. In 1894 he was awarded the Travelling Medical Scholarship of the Royal University and as a result spent some time in medical study in Berlin and elsewhere on the continent. On returning home he became lecturer on anatomy in Queen's College, Galway, and resident medical officer of Galway Hospital. In 1900 he obtained the studentship of the Royal University in pathology and bacteriology. It was in 1895 that he began practice in Belfast and soon confined his attention to diseases of the throat and nose. In 1902 he was appointed assistant surgeon to the Ulster Eye, Ear, and Throat Hospital, and his work there fully maintained the high repute of that institution. Apart from his professional skill Dr. Allen was a man of great social qualities and hospitality, and was a very popular member of the profession. His widow is a daughter of

Professor R. J. Kinkead of Galway. Dr. Allen was buried on Dec. 4th, the funeral being strictly private.

### SAMUEL HOPKINS STEEL, M.B. LOND., M.R.C.S. ENG., J.P.

Dr. Samuel Hopkins Steel died at his residence, Dyne House, Abergavenny, Monmouthshire, on Nov. 25th, in his eighty-eighth year. The deceased, who received his medical education at King's College Hospital, London, qualified M.R.C.S. Eng. in 1843 and two years later graduated M.B. of the University of London. Dr. Steel was for many years in practice at Abergavenny but retired from active work some years ago. He was at the time of his death consulting surgeon to the Abergavenny Cottage Hospital. He was for many years medical officer of health of the Abergavenny urban district and was on the commission of the peace for the county of Monmouth. He took a great interest in the Volunteer movement and for some years was captain of the Abergavenny Rifle Corps, then known as the 7th Monmouthshire. Dr. Steel was one of the oldest and most respected inhabitants of Abergavenny and his funeral, which took place at Llanfoist Churchyard on Nov. 30th, was very largely attended.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following foreign eminent medical men are announced:—Dr. Hermann Gutmann of Berlin, author of various books on hygiene and diseases of children, aged 60 years. Dr. Erdmann, medical councillor of Dresden.

# Medical News.

UNIVERSITY OF CAMBRIDGE.—The following degrees were conferred recently:—

*M.D.*—C. H. W. Page, Corpus Christi; A. G. Harvey, St. John's; and R. N. Chopra, Downing.
*M.B.*—C. H. Rippmann, King's; H. H. Taylor, Pembroke; H. G. Frean, St. John's; F. P. Young, Christ's; J. B. Mennell, Pembroke; and J. F. Windsor, H. Selwyn.
*B.C.*—W. B. Marshall, St. John's.

Permission to incept in Surgery without examination has been granted to Dr. T. H. Kellock, Emmanuel College.—The office of Superintendent of the Zoology Museum becomes vacant on Jan. 15th, 1909, by the resignation of Dr. Harman. The stipend at present is £200 per annum. Applications should be made to Professor J. N. Langley before Jan. 21st, 1909.—The following appointments have been made:—University Lecturer in Pharmacology: Professor W. E. Dixon. Members of General Board of Studies: Dr. W. H. Gaskell and Mr. A. E. Shipley. Member of Library Syndicate: Dr. H. K. Anderson. Members of State Medicine Syndicate: Professor Langley and Dr. W. L. H. Duckworth. Member of Special Board for Medicine: Dr. W. M. Fletcher. Member of Board of Geographical Studies: Dr. F. H. H. Guillemard. Member of Board of Military Studies: Dr. J. Griffiths. Examiners in State Medicine: Dr. B. Anningson, Dr. J. Niven, Dr. G. S. Graham-Smith, and Mr. J. E. Purvis. Examiners in Tropical Medicine and Hygiene: Dr. J. W. W. Stephens, Dr. C. W. Daniels, and Lieutenant-Colonel W. B. Leishman.

UNIVERSITY OF LONDON.—At examinations held in October the following candidates satisfied the examiners:—

M.B., B.S. EXAMINATION.

*Honours.*—*§‖Herbert Orpe Brookhouse (University medal), Guy's Hospital; §Arthur Laurence Candler, St. Bartholomew's Hospital; ‡Maxwell Dick, University College Hospital; *Habibmia I. Janmahomed, Guy's Hospital; §Austin Threlfall Nankivell and §James Ernest Helme Roberts, St. Bartholomew's Hospital; ‖Douglas Robert C. Shepherd, Middlesex Hospital; *Vincent Townrow, Guy's Hospital; and †Enid Margaret Walters, London (Royal Free Hospital) School of Medicine for Women.

* Distinguished in Medicine. † Distinguished in Pathology.
‡ Distinguished in Forensic Medicine and Hygiene.
§ Distinguished in Surgery.
‖ Distinguished in Midwifery and Diseases of Women.

*Pass.*—Alicia Pears Aldous, London (Royal Free Hospital) School of Medicine for Women; Ernest Fryer Ballard, St. Thomas's Hospital; Robert Sidney Barker, Westminster Hospital; Charles Anthony Basker, Guy's Hospital; Frank Cyril Harvie Bennett, St. Mary's Hospital; Phirozshaw C. Bharucha, University College Hospital; Lilias Margaret Blackett, London (Royal Free Hospital) School of Medicine for Women; Sydney Herbert Booth, University of Leeds; John Webster Bride, Victoria University of Manchester; Kate Brown, London (Royal Free Hospital) School of Medicine for Women; Ralph Brown, University College and Westminster Hospitals; Eda Stanley Bryan-Brown, London (Royal Free Hospital) School of Medicine for Women; Thomas William Higgins Burne, St. Bartholomew's Hospital; Francis William Chandler, University of Sheffield; Cecil Clarke, University College, Bristol; Cecil Colmer, London Hospital; Ernest Neville Cook, University College Hospital; Ethel Constance Cousins, London (Royal Free Hospital) School of Medicine for Women; Herbert Rees Davies, London Hospital; Rose Lilian Humphrey Davy, London (Royal Free Hospital) School of Medicine for Women; Vaman Ganesh Desai, King's College Hospital; Ethel Adelaide Douglas, London (Royal Free Hospital) School of Medicine for Women; Dean Dunbar, University of Leeds; Douglas Gordon Evans, London Hospital; Robert Cecil T. Evans, B.Sc., and Norman Kessen Foster, University College Hospital; Gertrude Gazdar, London (Royal Free Hospital) School of Medicine for Women; Henry Leatham Grabham; St. Thomas's Hospital; Thomas John Hallinan, Charing Cross Hospital; John Maximilian Hammond, St. Bartholomew's Hospital and University College, Bristol; George Blenkhorn Harland, Guy's Hospital and University of Durham; Henry John Henderson, Guy's Hospital; Susie Eleanor Hill, London (Royal Free Hospital) School of Medicine for Women; Kenneth Hill Hole, Guy's Hospital; William Andrew Morton Jack, St. Thomas's Hospital; William Johnson, Guy's Hospital; Alexander John Kendrew, St. Bartholomew's Hospital; Hugh Braund Kent, Guy's Hospital; Elsie Marian Layman, London (Royal Free Hospital) School of Medicine for Women; John Lewis, University College, Cardiff, and University College Hospital; William Ernest Lord, Victoria University of Manchester; Oswald William McSheehy, St. Thomas's Hospital; Mary Elizabeth Parsons, London (Royal Free Hospital) School of Medicine for Women; Douglas Reynolds, Guy's Hospital; Mabel Russell and Alice Emilie Sanderson, B.Sc., London (Royal Free Hospital) School of Medicine for Women; Harry Archibald Sanford, Guy's Hospital; Rachel Hicks Shelley, London (Royal Free Hospital) School of Medicine for Women; Frank Standish, London Hospital; Vernon Harold Starr, King's College Hospital; Kenneth Henry Stokes and John Jerome Suckling, University College Hospital; John Thompson, B.Sc., Victoria University of Manchester; Geoffrey Viner, St. Bartholomew's Hospital; Cuthbert Ferguson Walker, Queen's College, Belfast, and St. Mary's Hospital; Anna Belinda Walsh and Dora Muriel Watney, London (Royal Free Hospital) School of Medicine for Women; Charles McMoran Wilson, St. Mary's Hospital; Horace Richard Wilson, University of Liverpool; Sophia Margaret V. Witts, London (Royal Free Hospital) School of Medicine for Women; Arthur Lowndes Yates, St. Bartholomew's Hospital; and Courtenay Yorke, University of Liverpool.

The following is the supplementary pass list of candidates who have passed in one of the two groups of subjects:—

*Group I.*—John Nathaniel Beadles, Westminster Hospital; Harry Cecil R. Darling, University College Hospital; Arthur Davies, Westminster Hospital; Irene Cecil Davy Eaton, London (Royal Free Hospital) School of Medicine for Women; Raymond Charles Viner Edsall and William Poole Henley Munden, Guy's Hospital; John Sherwood New, University College Hospital; Hilda Margaret Pollard, London (Royal Free Hospital) School of Medicine for Women; Marion Stocks, Victoria University of Manchester; Robert Archibald Slater Sunderland, St. Bartholomew's Hospital; Robert William Walter Vaughan, University College Hospital; and Lilian Enid Watney, London (Royal Free Hospital) School of Medicine for Women.

*Group II.*—Leonard Tilsley Baker, Guy's Hospital; Henry Lewis Barker, St. Thomas's Hospital; Wilfred Blaydes, St. Bartholomew's Hospital; Charles Herbert Broomhead, Victoria University of Manchester; Angel Camacho, Charing Cross Hospital; Claude Howard S. Frankau, St. George's Hospital; William Lionel Evelyn Fretz, University College Hospital; Eric Leigh Fyffe, St. Thomas's Hospital; Edward Ratcliffe Holborow, University College, Bristol; Matilda Hunt and Mary Sophia Jevons, London (Royal Free Hospital) School of Medicine for Women; Robert Henry Hatten Jolly, Charing Cross Hospital; James Douglas Judson, Victoria University of Manchester; Herbert Cubitt Lucey, Guy's Hospital; Walter Henry Palmer, London Hospital; Eustace M. Parson-Smith, St. Thomas's Hospital; Kenneth Robinson, Victoria University of Manchester; Florence Stacey, London (Royal Free Hospital) School of Medicine for Women; Sydney Arthur Tucker, St. Bartholomew's Hospital; Sybil Ibbetson Welsh, London (Royal Free Hospital) School of Medicine for Women; and Edward Denis Whittle, University College Hospital.

The names of students who have now completed the M.B., B.S. examination do not appear in this list.

At examinations held in November for internal students the following candidate satisfied the examiners:—

D.SC. EXAMINATION.

*Physiology.*—Hubert William Bywaters, University of London (Physiological Laboratory).

N.B.—This list, published for the convenience of candidates, is issued subject to its approval by the Senate.

UNIVERSITY OF BIRMINGHAM.—The following gentlemen have passed the Final M.B., Ch.B. Examination:—

John Adams, George Henry Chavasse Mold, David Priestley Smith, and Henry Philip Thomason.

CENTRAL MIDWIVES BOARD.—A special meeting of the Central Midwives Board was held on Dec. 3rd at Caxton House, Westminster, Dr. F. H. Champneys being in the chair. The sitting lasted the whole day, the amount of disciplinary work before the Board being very large. The Board considered the following charges, amongst others, against the midwives whose names are given below and ordered

them to be struck off the Roll:—Grace Baker, that with intent to avoid inspection and supervision by the duly appointed officer of the local supervising authority she did not notify her intention to practise in the year 1908, but expressly declared that she did not intend to practise; that nevertheless she practised as a midwife during 1908. Mary Annie Barton, that being in attendance as a midwife at a confinement she did not take with her the appliances or antiseptics required by Rule E, 2; that she did not wash the patient's external parts with soap and water and swab them with an antiseptic solution before making the first internal examination, or after the termination of labour, as required by Rule E, 7; that she washed the patient once only during the lying-in period. Sarah Elizabeth Beardsley, that being in attendance as a midwife at a confinement she did not wash the patient at all until 17 hours after the confinement; the patient being ill on Oct. 6th, suffering from severe internal pain, she (the midwife) did not send for a medical man; that she habitually neglected to take the pulse and temperature of her patients. Charlotte Bradford, that on or about July 14th, 1908, she laid out the body of a child who had died from erysipelas, not having being in attendance on the child at the time of its death, in contravention of Rule E, 16; that she subsequently attended as a midwife at a confinement without having undergone adequate disinfection of herself, her clothing, and her appliances, as required by Rule E, 5. Sarah Brown, that being in attendance as a midwife at a confinement, the patient suffering from sore breasts on the second day, she did not call in a medical man, and also the baby being ill on the second day, she did not call in a medical man; that being in attendance as a midwife at another confinement and the child suffering from inflammation of the eyes and from thrush on August 18th, she did not call in a medical man. Elizabeth Ellis, that being in attendance as a midwife, the patient being very ill with puerperal fever, her pulse 126, and her temperature 104·8° F., she (the midwife) did not send for a medical man. Catherine Evans, that being in attendance as a midwife at a confinement, the infant's eyes being inflamed and there being umbilical inflammation and hæmorrhage, she (the midwife) did not send for a medical man; that she could not take the temperature of her patients, being unable to use a clinical thermometer. Sarah Ann Fitton, that being in attendance as a midwife at a confinement, excessive bleeding taking place, with persistently offensive lochia and shivering fits, she did not send for a medical man. Jane Folland, that being in attendance as a midwife at a confinement, the patient's perineum being seriously ruptured, she did not send for a medical man. Fanny Hartland, that being in attendance as a midwife at a confinement, the child suffering from inflammation of the left eye, she did not send for a medical man. Sarah Ann Lambert, that being in attendance as a midwife at a confinement, the child being premature and dangerously feeble at birth, she did not send for a medical man; notwithstanding that the patient suggested that a registered medical practitioner should be sent for in consequence of the child suffering from convulsions at noon on the following day she (the midwife) declined to do so. Hannah Naylor, that being in attendance as a midwife at a confinement, the case being one of miscarriage, she did not send for a medical man. Dinah Ann Peace, that at the Mansfield police court she was convicted of assault; that she was uncleanly in her house, clothing, and appliances; that she habitually neglected to notify stillbirths to the local supervising authority. Catherine Rhoda Emily Skoines, that being in attendance as a midwife at a confinement, the patient being ill and feverish and suffering from abdominal pains, she (the midwife) did not send for a medical man. Sarah Stevenson, that being in attendance as a midwife at a confinement, she used a piece of flannel for washing the patient's genital organs, in contravention of Rule E, 7; that being in attendance as a midwife at another confinement, the patient being ill with abdominal pain and headache, she did not send for a medical man; that being in attendance as a midwife at another confinement, the placenta not having been completely expelled two hours after the birth of the child, she did not send for a medical man. Mary Stokes, that being in attendance as a midwife at a confinement, the case being one of abortion, she did not send for a medical man; the patient being ill with vomiting and persistently offensive lochia, she did not send for a medical man. Eliza Allsop, that being in attendance as a midwife at a confinement she was uncleanly in her person, clothing, and appliances, and did not take with her to the confinement the appliances or antiseptics required by Rule E, 2. Edith Mary Peacock and Mary Sparks, for drunkenness. The following midwives were censured after charges alleged against them had been considered: Rosetta Bromley, Jane Deane, Fanny Froggett, Annie Maddocks, Annie Marian Palmer, Mary Rimmer, and Ann Sephton. Emily Langley and Mary Ward were cautioned after charges alleged against them had been considered. The consideration of the charges alleged against Catherine Walls and Maria Booth was adjourned.

UNIVERSITY OF LIVERPOOL.—The annual meeting of the University Court was held at the Town-hall on Nov. 28th. The Court sanctioned a rearrangement of the teaching of the subjects of therapeutics, pharmacology, materia medica, and pharmacy. The subject of therapeutics is now separated from that of pharmacology and a new chair of therapeutics has been established, to which Dr. John Hill Abram has been appointed. Pharmacology will in future be taught as a laboratory course, chiefly by means of demonstrations of the action of drugs. For the purpose of this course and for the conduct of pharmacological researches in the University a special department of pharmacology is in course of establishment. During the summer term of 1909 the course in this subject for medical students will be in charge of Dr. O. T. Williams, demonstrator of bio-chemistry. Materia medica and pharmacy have been placed in charge of Mr. P. H. Marsden who now conducts both lecture and laboratory courses. Mr. W. Thelwall Thomas has had conferred upon him the title of associate professor of surgery on the recommendation of the Senate. Mr. Thomas has recently presented to the Faculty a collection of specimens and photographs illustrating the subject of surgical pathology. They will prove a valuable addition to the surgical museum.

ASSOCIATION FOR PROMOTING THE TRAINING AND SUPPLY OF MIDWIVES.—A meeting of the council of this association was held at the office in Dacre-street, Westminster, on Nov. 26th. Dr. Salaman presided, and among those present were the Dowager Marchioness of Bristol, the Viscountess St. Aldwyn, the Lady Balfour of Burleigh, Lady Prideaux, Mrs. Arnold Gabriel, Mrs. Percy Boulnois, Miss Rosalind Paget, Miss Wilson, Sir Herbert George Fordham, and Mr. Francis Freemantle. Mrs. Wallace Bruce, chairman of the executive committee, made a report on the work of the executive committee and various sub-committees. 20 pupils had been trained in the course of the year besides those who finished their course in the first months and those who would enter before the close of the year. These were trained at the East Ham Home, East-end Mothers' Home, General Lying-in Hospital, and the Leicester Maternity Hospital. The training had been very successful and all the midwives were now at work. At the East Ham Home, a branch of the Plaistow Maternity Charity specially supported by the association, 669 cases had been taken during the first nine months, and 12,349 visits paid by the midwives and pupils; a most valuable and practical district training was thus given. In response to many appeals for advice the training sub-committee had drawn up two leaflets of suggestions for starting a midwife and for the formation of maternity clubs, copies of which can be obtained from the secretary. Mr. Arthur L. Leon, the honorary treasurer, stated that in response to the special appeal about £900 had been received towards the £5000 which the association hoped to obtain for pushing forward the work with increased activity. He urged the increase of annual subscriptions by which confidence could be felt in extending the work of the association. The lady collectors, with Mrs. Samuel Bruce as the leader, were continuing their valuable work. The amount spent on training during the year was about £400 besides the £100 subscribed to the upkeep of the East Ham Home. Much interest was shown by the members of the council present in the various questions brought forward, and special reference was made to the "method of work" which had been drawn up by the executive committee early in the year. It was agreed that often the best method was to help towards the maintenance of midwives during the term of working up a practice, and pending local organisation. There followed an interesting discussion on the best means of securing a uniform supply of

midwives throughout the country, the difficulties of the rural districts being fully realised.

UNIVERSITY COLLEGE HOSPITAL, LONDON.—Sir Victor Horsley will read a paper on "The Cerebellum," on Wednesday, Dec. 16th, before the Medical Society of the hospital in the school, Grafton-street, W.C., Dr. J. S. Risien Russell in the chair. The proceedings will commence at 8.30 P.M.

DONATIONS AND BEQUESTS.—The governors of St. Thomas's Hospital have received from the executors the sum of £3493 8*s.* 6*d.*, the legacy bequeathed by the late Mr. Isaac Lyell Coley. A similar sum from the same source has been received by the treasurer of the City of London Lying-in Hospital.—The late Mr. Henry Barnato has left by will £250,000 sterling for the purpose of founding a hospital or other charitable institution in memory of his late brother, Mr. Barnett Barnato, and of his late nephew, Mr. Woolf Joel.—Under the will of the late Sir George Livesey £10,000 (subject to the life interest of Lady Livesey) will be paid to the King Edward VII. Hospital Fund.—The Ipswich and East Suffolk Hospital will benefit by the sum of £1000 under the will of the late Mr. James Farrow.—By the will of Mrs. Elizabeth Lottie Irving £1000 have been bequeathed to the Manchester Royal Infirmary Dispensary and Lunatic Hospital to endow a bed in her name; £300 each to the Christie Cancer Pavilion and Home, Manchester, the St. Mary's Hospital, Manchester, and Henshaw's Blind Asylum, Manchester, and £200 to the Northern Counties Hospital for Incurables.

CHURCH CONTRIBUTIONS AND THE CLOSING OF THE ROYAL VICTORIA INFIRMARY, NEWCASTLE-UPON-TYNE, AGAINST ALL RELIGIOUS SERVICES.—As is usual on "Lord Mayor's Sunday," the collections at the morning and evening services at the Cathedral at Newcastle-upon-Tyne were devoted to the medical charities of the district. The amount contributed was only £93, as against £126 last year. More than one explanation has been put forward to account for this very marked decline in the amount given to the medical charities. The prevailing distress as the result of unemployment may in part account for it. Others attribute the falling off in the contributions to the passing of the Old Age Pensions Act and argue that now that the public has to be charitable by Act of Parliament it will cease to contribute voluntarily. However that may be, there can be but little doubt that in the present instance the unfortunate action of the governors of the Royal Victoria Infirmary in closing the infirmary against all religious services at the instance of the Nonconformist bodies of the district must be held largely responsible and this view was held by one of the best known clergymen in the city who appealed to his congregation to give as liberally as they had done in previous years and not to allow any action of the governors to interfere with their contributions to the relief of the sick whose needs were as great now as ever they were. The facts leading up to the closing of the infirmary against religious services may with advantage be outlined here. In 1754 a chapel was consecrated in the old infirmary. When the new infirmary buildings were being erected on the Town Moor a chapel was built in continuation of the chapel in the old infirmary and the cost of building was defrayed out of the money subscribed for the new buildings. The new chapel was consecrated by the bishop on Sept. 19th, 1906. Provision was at the same time made for the Nonconformist bodies to hold services in the infirmary and the students' lecture theatre was made available for this purpose. Services were regularly held in the theatre for a period of nearly 18 months—October, 1906, to February, 1908. The secretary of the Free Church Council cordially acknowledged in several letters to the house governor the efforts of the house committee to secure the comfort and to meet the wishes of the Free Church Council and the arrangements made were adopted as satisfactory by the executive committee of the Council in a letter dated Oct. 18th, 1906. The Nonconformist bodies, however, subsequently demanded equal facilities with the Church of England chaplain in the use of St. Luke's chapel. The house committee addressed a series of questions to Chancellor Tristram, Commissary General, and also obtained an opinion from their honorary solicitors, Messrs. Clayton and Gibson, with a view to ascertain whether St. Luke's chapel could be legally made available for the holding of services not in accordance with the ritual of the Church of England. Chancellor Tristram replied that in his opinion neither the bishop nor any other authority had power to grant a licence whereby the chapel might be available for services conducted by a Nonconformist minister and not according to the ritual of the Church of England. Messrs. Clayton and Gibson replied in the same sense but thought it possible that a special Act of Parliament might be obtained for the purpose, though they did not advise that course partly because it was not certain that such an Act would pass and partly on the ground of expense. At the annual court of governors held on Feb. 29th of this year the house committee reported that acting on these opinions they were unable to accede to the request that St. Luke's chapel should be made available for the holding of Nonconformist services. After an amendment to the effect that a chapel should be erected for the Nonconformists at the expense of the Nonconformists, and that the cost of St. Luke's chapel should be defrayed by an appeal to members of the Church of England, had been defeated by 305 votes to 157, a motion was put that St. Luke's chapel should be closed forthwith and this was carried by 299 votes to 147. A subsequent motion that the students' lecture theatre should be also closed against religious services was agreed to unanimously. The position to-day unfortunately remains unchanged.

MEDICAL INSPECTION IN WORCESTERSHIRE.—At the last quarterly meeting of the Worcestershire education committee Mr. Willis Bund, the chairman, said that it was obvious from the circular sent out that the Board of Education contemplated further additions to the calls on the ratepayers. He suggested that as the work, admirable in itself, was largely national as opposed to local, the council should be advised not to undertake further than it had already done any arrangements for the health and physical condition of the school children. He pointed out that the council had to decide whether it would acquiesce in a Government department raising the rates by adding year by year to the county expenditure, requiring new work to be done and enforcing their desires by threats to withhold the grant already voted by Parliament for work already done by the council. He urged that it should be remembered that the medical inspection scheme now in force, which involved the county in a rate of almost ½*d.* in the pound, was adopted on the assurance of the President of the Board of Education that a Government grant would be made towards the cost, but that grant had not yet been made. At the same meeting the sanitary subcommittee reported the results of the medical inspection so far attained. Up to Oct. 30th 4166 children had been examined, but classified results were only available regarding the 2378 children who had been examined before Sept. 30th; of these it had been found necessary to notify the parents in 1660 cases. Heads were unclean in 524 cases. Defective teeth were present in 254 cases. There were 197 cases of enlarged tonsils, 120 of defective eyesight, 115 cases of anæmia, 70 of consumption, and one of pneumonia. Altogether it had been found necessary to exclude 270 children from the schools, of whom 70 were consumptive.

LONDON SCHOOL OF MEDICINE FOR WOMEN.—The seventh annual dinner of the Royal Free Hospital and the London School of Medicine for Women was held at the Hotel Cecil on Wednesday, Dec. 9th, Miss Aldrich-Blake, M.D., M.S., being in the chair. The company numbered about 120, among whom were Mrs. E. Garrett Anderson, M.D., who this year is the holder of the ancient office of Mayor of Aldeburgh, Mr. and Mrs. James Berry, Mrs. Stanley Boyd, Dr. Walter Carr, Sir W. Watson Cheyne, Dr. H. P. Cholmeley, Mr. Clinton Dent, Mr. and Mrs. Willmott Evans, Mr. A. Pearce Gould, Dr. W. S. A. Griffith, Mrs. Harris, Mr. T. P. Legg, Mr. Clement Lucas, Dr. and Mrs. Harrington Sainsbury, and Sir Felix Semon. The toast list was commendably short, for besides the loyal toasts there were only two—viz., "The School and the Hospital" and "The Guests." The former was proposed in an admirable speech by Miss Aldrich-Blake and responded to by Dr. Sainsbury and the latter was proposed by Mrs. Garrett Anderson and replied to by Dr. W. P. Herringham. A delightful musical programme had been provided, drawn up by Dr. A. G. Phear, the two vocalists being Mr. Louis Godfrey and Miss Hare, who sang amongst other things the old folk-dialogue "The Keys of

Heaven." Miss Hare, an old member of the school, who is the enviable possessor of a charming mezzo-soprano voice, sang songs by Goring Thomas, Brahms, and Loder, and Mr. Godfrey among other songs gave that delightful old Somerset folk-song in the Dorian mode, "I'm Seventeen come Sunday." Dr. Phear's tasteful accompaniment was by no means the least important feature of a most pleasant evening.

# Parliamentary Intelligence.

## NOTES ON CURRENT TOPICS.

*Lotteries and Indecent Advertisements.*

THE report of the Joint Committee of both Houses of Parliament, which some months ago investigated the subject of lotteries and indecent advertisements has been issued, along with the evidence, as a Parliamentary Blue-book.

*The Withdrawal of the Education Bill.*

The withdrawal of the Education Bill by the Government, in addition to the other consequences, removes the opportunity of discussing the question of the education grant with reference to the medical inspection of school children. Before the decision of the Government had been arrived at the Earl of CREWE stated in the House of Lords that the subject might be raised on one of the clauses of the Bill.

*Hop Substitutes.*

The CHANCELLOR of the EXCHEQUER has presented a Bill in the House of Commons to prohibit the use of hop substitutes in brewing and the importation of hops except in bags properly marked. It has been read a first time.

*The White Phosphorus Matches Prohibition Bill.*

The White Phosphorus Matches Prohibition Bill has made rapid progress during the past week. It was considered on report and read a third time in the House of Commons on Thursday, Dec. 3rd. On Tuesday, Dec. 8th, it received a second reading in the House of Lords.

*Public Health (Regulations as to Food) Act.*

Copies of the (1) Public Health (Foreign Meat) (Ireland) Regulations, 1908; and (2) Public Health (First Series, Unsound Food) (Ireland) Regulations, 1908, which have been made by the Local Government Board for Ireland have been presented to the House of Commons and been ordered to lie upon the table in the usual manner.

## HOUSE OF LORDS.

WEDNESDAY, DEC. 2ND.

*Medical Inspection of School Children.*

Viscount GALWAY called attention to the fact that no grant had yet been received by county councils towards the expenses incurred for the medical inspection of school children. He said that a great many local education authorities hesitated to put the Act into force until they knew what assistance they were likely to get from the Government.

Lord BELPER expressed the opinion that when the figures of the financial proposals of the Government with regard to education were examined there would not only be no grant for medical inspection but also an insufficient grant for other purposes.

The Earl of CREWE said that it was clear that the first cost of medical inspection must fall on the education rate. The question had been considered in connexion with what had been said as to grants on behalf of the Board of Education by Mr. McKenna when he was President of the Board. A White Paper had been issued explaining the financial proposals of the Education Bill of 1908. The effect of it was that several kinds of grants which were now given to the schools should be amalgamated and only a single grant should be given. Mr. McKenna had made it clear to a deputation that if help was to be given from central funds for medical inspection it must be given in a general grant and that it was not the intention of the Government to support a special grant for that purpose. Since that time, however, the situation had changed and the financial proposals were to form part of the Bill which had been recently introduced in the House of Commons in the same way as they formed part of Mr. McKenna's Bill. This fact made it difficult to enter into any financial details on the present occasion, but he understood that the clause which embodied them would be considered according to the allotment of business in another place on Monday, when the whole subject would be argued out. When the statement had been made noble lords could, of course, reopen the question as to the adequacy of the grant to meet this particular charge. It was generally admitted that medical inspection if properly carried out must involve a new burden on the local authorities. On the whole, however, he assured noble lords that the Board of Education was fully aware of the importance of the subject and that it recognised the fact that a very substantial charge must be placed on the local authorities by the measure of last year.

## HOUSE OF COMMONS.

WEDNESDAY, DEC. 2ND.

*The Weir Hospital Bequest, Streatham.*

Sir HENRY KIMBER asked the honourable Member for the Barnstaple Division, as representing the Charity Commissioners, whether, and when, the Charity Commissioners proposed to seal the scheme they were preparing respecting the diversion of the trust fund bequeathed by the late Mr. Benjamin Weir of Streatham; whether they would afford the Member for Wandsworth and the inhabitants of Streatham in the borough of Wandsworth a final opportunity of perusing it before it was actually sealed; and whether they would postpone the carrying out of the scheme until such time as the matter could be debated on some Vote in Supply next session.—Mr. SOARES replied: The Commissioners propose to seal the scheme on Tuesday next. I will send the honourable Member a copy of the scheme to-night. The answer to the last part of the question is that the scheme will be carried out in the ordinary course

*Pulmonary Consumption amongst Irish Labourers.*

Mr. FRENCH asked the President of the Local Government Board whether he was aware that Irish migratory labourers in numerous instances, having returned to their homes after harvesting in England, had been found suffering from pulmonary consumption, traceable to the sleeping places called Paddy houses, in which Irish farm labourers were permitted to be housed in England; whether he was aware that these houses were dark unventilated barns, in which the men had to sleep in coarse bags on the floor; and whether the sanitary authority could compel English farmers to give proper sleeping accommodation to their labourers; and, if so, would he see that the law was put in force.—Mr. BURNS furnished the following written reply: I am not in possession of any information to show that pulmonary consumption amongst Irish labourers has been caused in the way suggested. At the same time, I am aware that the temporary accommodation provided for migratory labourers, such as navvies, hop-pickers, strawberry and vegetable pickers, is not infrequently used for those engaged in harvesting, and that this accommodation is often unsatisfactory, though it is tending to improve. One of the medical inspectors of the Local Government Board is, by my direction, now engaged in investigating the conditions under which migratory labourers are housed. A report which he has already made with regard to hop-pickers has led to action being taken by the local authorities, and I am shortly expecting a further report from him in relation to other branches of the subject, which will, I believe, contain some definite recommendations with regard to the matter.

THURSDAY, DEC. 3RD.

*Poisons and Pharmacy Bill.*

Mr. H. SAMUEL, in moving the second reading of the Poisons and Pharmacy Bill, said that Clause 1 of the measure brought up to date the Schedule of Poisons contained in the Pharmacy Act, 1868, in the light of the knowledge acquired in the last 40 years. Clause 2 dealt with regulations for the sale of sheep-dips, weed-killers, and poisonous substances for the destruction of insect pests met with in agricultural and horticultural operations. Clause 3 dealt with companies carrying on the sale of drugs. Since this matter had been before a Joint Committee of both Houses of Parliament, negotiations had taken place between the Home Office, chemists, drug stores, and coöperative societies, and he was happy to say that agreement had been reached. He would have to move several amendments to the Bill in committee in pursuance of this agreement.

Mr. F. E. SMITH expressed his satisfaction that a compromise had been reached but he thought that the right honourable gentleman should indicate the effects of the amendments which he would propose in committee.

Mr. SAMUEL explained that the effect of the clause as amended would be that a drug store company must have a duly qualified chemist in charge of the actual dispensing of medicines as under the present law, and, in addition, a superintendent to manage the poisons department of the company. If the company had only one shop the superintendent and the dispenser of poisons could be one and the same person, but if there was a number of shops there must be a qualified chemist in each shop to dispense the medicines and at the same time a general manager of the poisons department who was also a qualified chemist. The drug companies and chemists agreed on that as a reasonable solution of the whole question. The title of "pharmacist" was limited to registered chemists and druggists, but apart from that the drug store, which conformed to these conditions, might retain the title of chemist and druggist.

Mr. ASHLEY hoped that under the Bill it might be possible to curtail the sale of morphine. The insidious drug habit did great harm in this country not only amongst men but amongst women.

Mr. H. W. FORSTER welcomed the Bill as he thought that under it something might be done to restrain the sale of morphine and preparations of opium. The schedule of the Pharmacy Act of 1868 was repealed and a new schedule containing these substances was substituted for it in the present Bill. There was no doubt that the drug habit was on the increase. It was one of the most deplorable diseases to which a man or woman could succumb. In his capacity as a member of a voluntary committee before which such cases had been brought he had heard stories of misery which had almost brought tears into the eyes of even a hardened politician like himself. He thought everyone ought to feel gratitude for anything which would make it difficult for people to obtain these drugs.

Sir HENRY CRAIK criticised the powers given in Clause 2 to tradesmen to sell various poisonous substances used by agriculturists and horticulturists. Was there any country in which fewer restrictions on the sale of poisons were imposed? Why should the general health of the community be disregarded and proper scientific precautions not be taken, and this widespread sale of poisonous substances be allowed, because it would be a little more convenient for the farmer to get his sheep dips and weed killers from the nearest shop? It was a dangerous relaxation of the law such as would not be permitted in any other country.

Mr. B. STRAUS hoped that the Government would make it impossible for the public to obtain dangerous drugs with the facility which they now obtained them. At present a patient got the prescription of a medical man for morphine and although it might be years old it was hawked about from druggist to druggist long after the illness for which it was intended had disappeared. The date should be inserted in such prescriptions and it should be made impossible for a druggist to dispense them after the lapse of a month. A measure of that kind would be most popular with the medical profession and no more useful provision for the well-being of the people could be passed.

Mr. SAMUEL, replying to the debate, said that the question of morphine had been raised. The Bill did make a change in the law in that respect. It took morphine out of Part II. of the schedule of the Pharmacy Act of 1868 and put it into Part I. and thereby considerably

increased the restrictions. The Bill was putting morphine into the same category as the most deadly poisons now known. Ireland had its own code of Pharmacy Acts and the Pharmacy Acts now being amended did not apply to Ireland at all. Consequently, it was not originally intended to apply this Bill to Ireland. In response, however, to a great desire among Irish agriculturists Clause 2 was extended to Ireland. Clause 3, which dealt with the vexed question of the drug stores, did not apply to Ireland. If, however, he found that there was a general desire in Ireland to have Clause 3 applied to Ireland he should only be too happy to take that into consideration.

The Bill was read a second time.

*White Phosphorus Matches Prohibition Bill.*

The House considered the White Phosphorus Matches Prohibition Bill on report.

The Earl of RONALDSHAY, in moving the omission of Clause 1, said that the object of the Bill was to prevent the spread of necrosis. From the very few cases of this disease in the last few years it appeared to be preventable already. He feared that one result of prohibiting the importation of white phosphorus matches would be the formation of a large trust or combine amongst the manufacturers of matches in this country.

Mr. GLADSTONE replied that it was true that only a few cases of necrosis had occurred during the last five years and the immunity had been secured at the expense of very great trouble and continual watchfulness. They could not say now that the match trade was safe from a possible outbreak of this very dreadful and harmful disease. He did not see a danger of a combination of match manufacturers being formed as the result of the Bill.

The amendment was withdrawn.

The Bill subsequently passed through the report stage and was read a third time.

FRIDAY, DEC. 4TH.

*The Cost of Medical Inspection of School Children.*

Mr. RAMSAY MACDONALD asked the President of the Board of Education whether he had received representations from local authorities drawing his attention to the expense of medical inspection provided for by the Education (Administrative Provisions) Act of last year; and whether any further assistance was to be provided from the Exchequer so as to enable this inspection to be carried on efficiently.—Mr. RUNCIMAN replied (by written answer): I have already stated that there is, in my opinion, the strongest objection to giving special grants for specific purposes in connexion with elementary education, but under the financial proposals in connexion with the Bill now before the House local education authorities will receive a large additional grant to assist them in carrying out medical inspection and their other duties in respect of elementary education.

TUESDAY, DEC. 8TH.

*A Surgeon-Captain and the Territorial Force.*

Mr. WATT asked the Secretary of State for War whether his attention had been called to the case of Surgeon-Captain James Swanson, late of the 1st Battalion Highland Light Infantry, whose headquarters were in Glasgow; whether he was aware that this officer had a very distinguished career of 15 years in that regiment; that he in two successive years won the challenge shield of Great Britain, and in a third year was second for it; that he was on several occasions complimented by his superior officers for his excellent work, yet when he expressed willingness to transfer to the new Territorial Army was not recommended in July for transfer to the new force; and would he inquire into this case and find out why the service was deprived of this officer?—Mr. HALDANE replied: I have made inquiry into this case. The general officer commanding in chief, Scottish command, reports that after full consideration of the case he was satisfied that this officer should not be transferred to the Territorial Force.

*The Medical Inspection of School Children.*

Major DUNNE asked the President of the Board of Education whether he would, either by legislation, if necessary, or, if not, by administrative action, provide the means to enable local education authorities to proceed against parents who wilfully withheld their children from medical inspection and thereby reduced the effectiveness of Section 13 (1) (b) of the Education (Administrative Provisions) Act, 1907.—Mr. RUNCIMAN furnished the following written reply: The Board has reason to believe that the number of children withheld by their parents from medical inspection is inconsiderable, and that as the benefits of such inspection become better known the number will decrease. At present the Board do not consider that any special action on their part is required or is desirable.

*The Sale of Food and Drugs Act in Cavan.*

Mr. VINCENT KENNEDY asked the Chief Secretary to the Lord Lieutenant of Ireland to state for how many years back there was a record of samples taken under the provisions of the Food and Drugs Act in Cavan; for how many counties were similar records kept; what steps were taken to secure that the results of analysis were scientifically accurate; and would he say of the 680 samples submitted in Cavan in 1907, how many were analysed by the public analyst and how many by deputy.—Mr. BIRRELL (by written answer) replied: The Local Government Board inform me that they are satisfied as to the qualifications of the analyst for county Cavan. There is no official information as to the other matters referred to in the question.

*The Isolation Hospital, Stornoway.*

Mr. WEIR asked the Secretary for Scotland, in view of the fact that there was a population of nearly 30,000 in the Island of Lewis, would he state the extent of the accommodation for cases of infectious disease in the isolation hospital at Stornoway.—Mr. SINCLAIR wrote in reply: I am informed that the hospital referred to contains ten beds.

WEDNESDAY, DEC. 9TH.

*The Report of the Bradford Anthrax Committee.*

Mr. BRIGG asked the Secretary of State for the Home Department whether, in consequence of the report of the Anthrax Committee of the Bradford Chamber of Commerce, which points to the fact that the germs of anthrax were to be found in blood stains only, he could relax any of the regulations now in force for the sorting and handling of foreign wools and goats' hair.—Mr. GLADSTONE furnished the following written answer: The investigations of the Anthrax Board are not yet completed, and it will be seen, on referring to page 9 of their report, that dust is still recognised as a source of danger. It would therefore be premature to propose any alterations in the existing rules at the present time. Relaxations may not prove to be practicable.

## HOUSING AND TOWN PLANNING BILL.

The Standing Committee of the House of Commons, which was charged with the consideration of the Housing and Town Planning Bill, dealt with proposed new clauses on Thursday, Dec. 3rd.

Sir JOHN DICKSON-POYNDER moved the following new clause:—"Every county medical officer of health shall make periodical reports to the public health and housing committee of the council, and if it appears to the county council from any report of such committee or medical officer that the Public Health Act, 1875, the Local Government Act, 1894, the Housing Acts, or any Acts amending or extending the same, have not been properly put in force within any county district to which the report relates, or that any other matter affecting the public health of the district requires to be remedied, the county council may institute any proceedings and do any act which the council might have instituted or done for that purpose, and shall be entitled to recover from the district council in default all such expenses in and about the said proceeding or act as the county council incur, and are not recovered from any other person, and have not been incurred in any unsuccessful proceeding." He said that he only moved this new clause for the purpose of getting to know the views and intentions of the President of the Local Government Board on this subject. Would the right honourable gentleman include a clause something like this one in the regulations to be issued under the Bill? Unless something of the kind was provided there would be friction between the county medical officer of health and the district medical officer. Some such provision as he proposed would be most useful.

Mr. BURNS said that he understood the honourable baronet moved the new clause less with the intention of getting it in the Bill than as a direction to the Local Government Board to act, through their regulations, generally on the lines laid down in the clause. If it was intended to embody the clause in the Bill he could certainly not accept it in its present form. However, as it was put forward to ascertain how the Local Government Board intended to act in this particular matter he could tell the honourable baronet that it did not include a number of matters that might be included. There had been one or two instances of none too harmonious relations already when such things were concerned. It might happen that both the county council and the district council would refuse to act, and then it ought to be that the Local Government Board should have power to act on default of the two authorities. The Local Government Board intended in its regulations to give full scope to what the honourable baronet desired. There would be one or two additions to give the superior body more default powers.

Sir JOHN DICKSON-POYNDER said that he was satisfied with the answer of the President of the Local Government Board, and he therefore asked leave to withdraw his proposed new clause.

The clause was then withdrawn.

After further discussion the Committee stage of the Bill was completed and it was ordered to be reported to the House.

## BOOKS, ETC., RECEIVED.

AMERICAN LARYNGOLOGICAL ASSOCIATION, New York. (Dr. J. E. NEWCOMB, Secretary, 118, West 69th-street, New York City, U.S.A.)

Transactions of the Thirtieth Annual Meeting of the American Laryngological Association held at Montreal, Canada, May 11th, 12th, and 13th, 1908. Price not stated.

BAILLIÈRE, J. B., ET FILS, 19, Rue Hautefeuille, Paris.

Traité des Maladies des Vieillards. Par le Docteur G. Rauzier, Professeur de Pathologie et de Thérapeutique Générales à la Faculté de Médecine de Montpellier. Préface de M. le Professeur Grasset. Price Fr. 12.

BAILLIÈRE, TINDALL, AND COX, 8, Henrietta-street, Covent-garden, London, W.C.

Handbook for Attendants on the Insane. Fifth edition, revised and enlarged. Thirty-third thousand. Published by the Authority of the Medico-Psychological Association. Price 2s. 6d. net.

BUTTERWORTH AND CO., 11 and 12, Bell-yard, Temple Bar, London.

Responsibility in Law. An Inquiry into the Meaning of Law and of Responsibility. By R. W. Rankine Wilson, M.A., B.C.L., LL.D., of Lincoln's Inn and the Middle Temple, Barrister-at-Law. Price not stated.

CHURCHILL, J. AND A., 7, Great Marlborough-street, London, W.

Report of the Prevention of Malaria in Mauritius. By Ronald Ross, D.P.H., F.R.C.S., D.Sc., LL.D., F.R.S., C.B., Professor of Tropical Medicine, University of Liverpool and Liverpool School of Tropical Medicine. Price 5s. net.

COLLINGRIDGE, W. H. AND L., 148 and 149, Aldersgate-street, London, E.C.

The Encyclopædia of Gardening. By T. W. Sanders, F.L.S., F.R.H.S. (Knight of First-class of the Royal Order of Wasa, Sweden), Editor of "Amateur Gardening" and "Farm and Gardening." Thirteenth edition. Price 3s. 6d. net.

CONSTABLE, ARCHIBALD, AND CO., LIMITED, 10, Orange-street, Leicester-square, London, W.C.

Essays, Biographical and Chemical. By Sir William Ramsay, K.C.B., Commandeur de la Légion d'Honneur, Commendatore della Corona d'Italia, Fellow of the Royal Society, &c. Price 7s. 6d. net.

DUCKWORTH AND CO., 3, Henrietta-street, Covent Garden, London, W.C.

The Pros and Cons of Vivisection. By Dr. Charles Richet, Professor of Physiology in the Faculty of Medicine, Paris. With a Preface by W. D. Halliburton, M.D., LL.D., F.R.S., Professor of Physiology, King's College, London. Price 2s. 6d. net.

Woman in Industry from Seven Points of View. By Gertrude M. Tuckwell, Constance Smith, Mary R. Macarthur, May Tennant, Nettie Adler, Adelaide M. Anderson, and Clementina Black. With a Preface by D. J. Shackleton, M.P. Price 2s. 6d. net.

FISCHER, GUSTAV, Jena.

Neuere Ergebnisse auf dem Gebiete der Speziellen Eiweisschemie. Von Emil Abderhalden, o. Professor für Physiologie an der Kgl. Tierärztlichen Hochschule, Berlin. Price M.3.50.

GRIFFIN, CHARLES, AND COMPANY, LIMITED, Exeter-street, Strand, London, W.C.

Principles of Sewage Treatment. By Professor Dr. Dunbar, Director of the Hamburg State Hygienic Institute. Translated, with the Author's sanction, by H. T. Calvert, M.Sc., Ph.D., F.I.C., Chief Chemical Assistant, West Riding of Yorkshire Rivers' Board. Price 15s. net.

HEFFER, W., AND SONS, Cambridge. (SIMPKIN, MARSHALL, AND CO., London.)

Exercises in Practical Physiological Chemistry. By Sydney W. Cole, M.A., Trinity College, Cambridge; Junior Demonstrator in Physiology, Cambridge University. Second edition. Price 5s. net.

KABITZSCH, CURT (A. STUBER'S VERLAG), Würzburg.

Die Sprache des Kindes und ihre Störungen. Von Dr. Paul Maas, Spezialarzt für Ohren-, Nasen-, Halsleiden und Sprachstörungen in Aachen. Price, paper, M.2.80; bound, M.3.50.

KIMPTON, HENRY, 13, Furnival-street, Holborn, London, E.C.

Kimpton's Essential Series. Essentials of Sanitary Science. By Gilbert E. Brooke, M.A. Cantab., L.R.C.P. Edin., D.P.H., F.R.G.S., Fellow of the Royal Institute of Public Health, Port Health Officer, Singapore. Price 6s. net.

KING, P. S., AND SON., Orchard House, Westminster, London, S.W.

The Future of Medicine. By Sydney W. MacIlwaine, M.R.C.S., L.R.C.P. (retired). Price 1s. net.

Philanthropy and the State, or Social Politics. By B. Kirkman Gray, Author of "A History of English Philanthropy." Edited by Eleanor Kirkman Gray and B. L. Hutchins. Price 7s. 6d. net.

LAURIE, T. WERNER, Clifford's Inn, Fleet-street, London, E.C.

The English Castles. By Edmund B. d'Auvergne. Illustrated. Price 6s. net.

LEHMANN, J. F., Heustrasse, 20, München.

Unsere Mittelschüler zu Hause. Schulhygienische Studie. Bearbeitet von Dr. Eugen Dörnberger, pr. Arzt in München und Dr. Karl Grassmann, pr. Arzt in München. Price M.5.

LONGMANS, GREEN, AND CO., 39, Paternoster-row, London; and New York, Bombay, and Calcutta.

Naval Warfare, its Historical Development from the Age of the Great Geographical Discoveries to the Present Time. By Baron Curt von Maltzahn, Vice-Admiral (retired). Translated from the German by John Combe Miller. Price 2s. net.

The Chemical Constitution of the Proteins. By R. H. Aders Plimmer, D.Sc., Assistant Professor of Physiological Chemistry in, and Fellow of, University College, London. In Two Parts. Part I., price 3s. net; Part II., price 2s. 6d. net.

NEMNICH, OTTO, Leipzig.

Der Syphilis-Bacillus, seine Geschichte, Literatur, Kultur, und spezifische Pathogenität für Tiere und Menschen. Von Dr. med. Max von Niessen, Wiesbaden. Price not stated.

Handbuch der Röntgentherapie nebst Anhang: Die Radiumtherapie. Ein Lehrbuch für Aerzte und Studierende. Von Dr. med. Josef Wetterer, Spezialarzt für Haut- und Harnkrankheiten in Mannheim. Price M.27.

RICHARDS, GRANT, 7, Carlton-street, London.

The Birds of the British Islands. By Charles Stonham, C.M.G., F.R.C.S., F.Z.S. With Illustrations by Lilian M. Medland, F.Z.S. In Twenty Parts. Part XII. Price 7s. 6d. net.

ROUSSET, JULES, 1, Rue Casimir-Delavigne, Paris.

Leçons Elémentaires de Microbiologie Générale professées à l'École Nationale d'Agriculture et de Médecine Vétérinaire du Pérou. Par M. Emm. Pozzi-Escot, Professeur de Chimie et de Microbiologie à l'École Nationale d'Agriculture et de Médecine Vétérinaire du Pérou. Price Fr.9.

SMITH, ELDER, AND CO., 15, Waterloo-place, London, S.W.

The Origin of the Sense of Beauty. Some Suggestions upon the Source and Development of the Æsthetic Feelings. By Felix Clay, B.A., Architect. Price 6s. net.

STEINHEIL, G., 2, Rue Casimir-Delavigne, Paris.

Action de la Contraction Utérine sur l'Œuf Humain. Phénomènes passifs de la Grossesse et du Travail. Par le Dr. Paul Bouquet, Médecin de la Maternité de Brest, Directeur du Cours départemental d'Accouchement. Price Fr.10.

SURGERY PUBLISHING COMPANY, 92, William-street, New York, U.S.A.

Practical Points in Anæsthesia. By Frederick-Emil Neef, B.S., B.L., M.L., M.D., New York City. Price 60 cents.

UNIVERSITY PRESS, Cambridge. (CAMBRIDGE UNIVERSITY PRESS WAREHOUSE (C. F. Clay, Manager), Fetter-lane, London, E.C.)

The Methods and Scope of Genetics. An Inaugural Lecture delivered 23rd October, 1908. By W. Bateson, M.A., F.R.S., Professor of Biology in the University of Cambridge. Price 1s. 6d. net.

UNIVERSITY PRESS, Manchester. (SHERRATT AND HUGHES, 33, Soho-square, London, W.)

Dreschfeld Memorial Volume. Containing an Account of the Life, Work, and Writings of the late Julius Dreschfeld, M.D., F.R.C.P., with a Series of Original Articles dedicated to his Memory by Colleagues in the University of Manchester and Former Pupils. Edited by E. M. Brockbank, M.D., F.R.C.P. Price 10s. 6d. net.

UNWIN, T. FISHER, 1, Adelphi-terrace, London, W.C.

Vital Economy, or How to Conserve Your Strength. By John H. Clarke, M.D. Price, paper, 1s. net; cloth, 2s. net.

URBAN UND SCHWARZENBERG, Berlin und Wien.

Lehrbuch der Physiologischen Chemie. In Zweiunddreissig Vorlesungen. Von Emil Abderhalden, O. Professor der Physiologie an der Kgl. Tierärztlichen Hochschule, Berlin. Zweite, vollständig umgearbeitete und erweiterte Auflage. Price not stated.

# Appointments.

*Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BERKELEY, COMYNS, M.B., B.C. Cantab., M.R.C.P., has been appointed an Examiner in Midwifery and Diseases of Women to the University of Oxford.

EMRYS-ROBERTS, EDWARD, M.B., Ch.B. Vict., M.B., Ch.B. Liverp., has been appointed Pathologist to the Bristol General Hospital.

JONES, D. W CARMALT, M.B. Oxon, M.R.C.P., has been appointed Assistant Physician to Westminster Hospital.

PATTON, J., M.B., B.S. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Ederney District of the county of Fermanagh.

RAMSAY, JEFFREY, M.B. Lond., has been appointed Senior House Surgeon at the Blackburn and East Lancashire Infirmary.

SEMPLE, M., M.D., M.S. Irel., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Cong District of the county of Mayo.

WHITLOCK, ADA MILES, M.B., B.S. Lond., has been appointed a Medical Inspector of Schools by the Gloucestershire Education Committee.

WILLIAMS, T. GEE, M.B., Ch.B. Manch., has been appointed Junior House Surgeon at the Blackburn and East Lancashire Infirmary.

# Vacancies.

*For further information regarding each vacancy reference should be made to the advertisement (see Index).*

BATH, EASTERN DISPENSARY.—Resident Medical Practitioner. Salary £130 per annum, with apartments, coals, gas, and attendance.

BERMONDSEY MEDICAL MISSION.—Resident Assistant (female) for six months. Board and residence provided.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—House Surgeon. Salary £70 per annum.

BIRMINGHAM, QUEEN'S HOSPITAL.—House Surgeon for six months. Salary at rate of £50 per annum, with board, lodging, and washing.

BIRMINGHAM, UNIVERSITY OF.—Lecturer in Physiology. Stipend £150 per annum.

BLACKPOOL, COUNTY BOROUGH OF.—School Medical Officer (female). Salary £200 per annum.

BRISTOL ROYAL INFIRMARY.—Ophthalmic and Obstetric House Surgeon. Salary £75 per annum, with board, lodging, and washing. Also House Physician.

CANCER HOSPITAL, Fulham-road, London, S.W.—Assistant Anæsthetist. Salary 25 guineas per annum.

CARDIFF CITY MENTAL HOSPITAL, Whitchurch.—Junior Assistant Medical Officer, unmarried. Salary £170, with quarters and all found.

CARDIFF INFIRMARY (GENERAL HOSPITAL).—House Surgeon for six months. Salary £30, with board, residence, and laundry.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C. —Registrars.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—House Physician for six months. Salary at rate of £50 per annum, with board, washing, and residence.

DERBYSHIRE ROYAL INFIRMARY.—Two House Surgeons, One House Physician, and One Assistant House Surgeon. Salary of three former £100 per annum, with apartments, board, &c.; and of latter at rate of £60 per annum, with apartments, board, &c.

DEVONPORT, ROYAL ALBERT HOSPITAL.—Resident Medical Officer, unmarried. Salary £100 per annum, with apartments, board, &c.

DUBLIN, DR. STEEVENS' HOSPITAL.—House Surgeon. Salary £100 per annum, with apartments, fire, and light.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark Bridge-road, London, S.E.—Aural Surgeon, also Clinical Assistants.

GLOUCESTER GENERAL INFIRMARY AND GLOUCESTERSHIRE EYE INSTITUTION.—Assistant Physician.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Physician, unmarried, for six months. Salary £30, with board and residence.

HUDDERSFIELD INFIRMARY.—Senior House Surgeon. Salary £100 per annum, with rooms, board, washing, and attendance.

LINCOLN COUNTY HOSPITAL.—Junior House Surgeon, unmarried, for six months. Salary £30, with board, residence, and washing.

LINCOLN UNION.—Medical Officer. Salary £100 per annum and fees.

LIVERPOOL EYE AND EAR INFIRMARY, Myrtle-street.—House Surgeon. Salary £80 per annum, with board and residence.

LIVERPOOL, ROYAL SOUTHERN HOSPITAL.—House Physician. Salary £60 per annum, with board and residence.

LONDON LOCK HOSPITAL, Dean-street, Soho.—House Surgeon. Salary £100 per annum, with board, lodging, and washing.

LONDON TEMPERANCE HOSPITAL.—Assistant House Surgeon, non-resident, for six months. Salary at rate of £75 per annum.

LOUGHBOROUGH AND DISTRICT GENERAL HOSPITAL AND DISPENSARY.—Resident House Surgeon. Salary £100 per annum, with rooms, attendance, board, and washing.

MANCHESTER, MONSALL FEVER HOSPITAL.—Senior Assistant Medical Officer, unmarried. Salary £180 per annum, with board, lodging, and washing.

MANCHESTER ROYAL INFIRMARY.—Resident Medical Officer. Salary £150 per annum, with board and residence.

MERTHYR TYDFIL EDUCATION COMMITTEE.—Medical Inspector of School Children. Salary £250, rising to £350 per annum.

MIDDLESEX HOSPITAL, W.—Medical Registrar, Surgical Registrar, and Obstetrical Registrar. Also Second Assistant to the Director of the Bacteriological and Clinical Laboratories. Salary £100 per annum.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Hampstead and Northwood, Middlesex.—Assistant Resident Medical Officer. Salary £50 per annum, with board and residence.

NEWCASTLE-UPON-TYNE, CITY LUNATIC ASYLUM, Gosforth.—Assistant Medical Officer, unmarried. Salary £140 per annum, with apartments, board, and laundry.

NEWCASTLE-ON-TYNE DISPENSARY.—Visiting Medical Assistant. Salary £160 per annum.

NORTHAMPTON GENERAL HOSPITAL.—Senior Resident Medical Officer, unmarried. Salary £120 per annum, with apartments, board, washing, and attendance.

NOTTINGHAM CHILDREN'S HOSPITAL.—House Surgeon (female) for six months. Salary at rate of £80 per annum, with board, &c.

NOTTINGHAM GENERAL HOSPITAL.—Assistant House Physician. Salary £60 per annum, with board, lodging, and washing.

OXFORD EYE HOSPITAL, Walton-street.—Resident House Surgeon. Salary £100 per annum, with board and lodging.

PERTH DISTRICT ASYLUM, Murthly.—Assistant Medical Officer. Salary £120 per annum, with rooms, board, and washing.

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House Surgeon. Salary £100 per annum, with board, residence, and washing.

ROYAL EAR HOSPITAL, Soho.—House Surgeon for six months. Salary at rate of £40 per annum.

ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN, S.E.—Junior Resident Medical Officer. Salary at rate of £40 per annum, with board and washing.

ST. GEORGE'S HOSPITAL, Hyde Park-corner, S.W.—Resident Anæsthetist. Salary at rate of £100 per annum, with board and residence.

ST. MARK'S HOSPITAL FOR FISTULA AND OTHER DISEASES OF THE RECTUM, City-road, E.C.—Clinical Assistants.

ST. PANCRAS INFIRMARY (NORTH), Dartmouth Park-hill, N.—Junior Assistant Medical Superintendent. Salary £75 per annum, with apartments, rations, and washing.

SOUTHPORT, COUNTY BOROUGH OF, EDUCATION DEPARTMENT.—School Medical Officer. Salary £250 per annum.

SUNDERLAND, MONKWEARMOUTH AND SOUTHWICK HOSPITAL.—House Surgeon. Salary £100 per annum, with board, lodging, and laundry.

WANDSWORTH UNION INFIRMARY, St. John's Hill, near Clapham Junction.—Junior Assistant Medical Officer, unmarried, for six months. Salary at rate of £120 per annum, with board, lodging, and washing.

WEST HAM HOSPITAL, Stratford, E.—Junior House Surgeon. Salary at rate of £75 per annum, with board, residence, &c.

WEST LONDON HOSPITAL AND POST-GRADUATE COLLEGE, Hammersmith-road, W.—Clinical Assistants. Also Casualty Officers.

WESTMINSTER GENERAL DISPENSARY.—Honorary Surgeon.

WESTMINSTER HOSPITAL, Broad Sanctuary, S.W.—Assistant Surgeon. Also Medical Registrar. Salary £50 per annum.

YORKSHIRE, REETH UNION AND RURAL DISTRICT COUNCIL.—Medical Officer (Muker District) and Medical Officer of Health (Whole District). Salaries £45 and £50 respectively.

# Births, Marriages, and Deaths.

## BIRTHS.

BARWELL.—On Dec. 4th, at Wimpole-street, the wife of Harold Barwell, M.B., F.R.C.S., of a son.

HILL.—On Dec. 4th, at St. Domingo, Hoylake, the wife of Charles A. Hill, M.A., M.B., B.C. Cantab., D.P.H., of a son (Charles Guyse).

PASMORE.—On Dec. 3rd, at Warlingham, the wife of Dr. E. Stephen Pasmore, M.R.C.P., medical superintendent of Croydon Mental Hospital, of a son.

THOMSON.—On Nov. 30th, at Bath, the wife of F. G. Thomson, B.A. Cantab., M.D. Lond., M.R.C.S., L.R.C.P., of a son.

## MARRIAGES.

FALCONER—CLARKE.—On Dec. 9th, at Macfadyen Memorial Church, Chorlton-cum-Hardy, by the Rev. David Walters, James Law Falconer, M.B., F.R.C.S., of 22, Chorley New-road, Bolton, to Lottie, daughter of Thos. Clarke of Whalley Range, Manchester.

SHORE—HALL.—On Dec. 5th, at St. Mary Abbots, Kensington, Lewis Shore, M.D., Fellow of St. John's College, Cambridge, to Agatha Catherine, daughter of R. Gresley Hall, D.L.

## DEATHS.

BEEVOR.—On Dec. 5th, at Harley-street, W., Charles Edward Beevor, M.D., F.R.C.P., aged 54 years.

DAVIES.—On Dec. 3rd, at Holmfield, Ewell, Surrey, Francis Pritchard Davies, M.D., aged 64 years.

HENRY.—On Dec. 2nd, at Strathmore, Leckhampton, Cheltenham, Lieutenant-Colonel J. J. Henry, R.A.M.C., aged 79 years.

*N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.*

# Notes, Short Comments, and Answers to Correspondents.

## NEGLECTING CHILDREN.

ONE of the most depressing aspects of certain portions of what we call civilised life is the callousness and cruelty so often shown to helpless infants. Frequently, too, it is accompanied by gross immorality, of which, indeed, it is often an incidental product. A particularly bad case was brought under observation as the result of an inquest on an illegitimate child that was held in Harpurhey, Manchester. The father of the family earned £1 17*s.* a week and two of his seven children brought up the income to £2 15*s.* The father was charged with neglecting two of his children. One daughter, Edith, was charged for neglecting her illegitimate child. Another daughter, Laura, had so neglected her child, also illegitimate, that he died. Instead of weighing about 17 pounds, as he should have done, he only weighed 6 pounds. Though two years old, the child of Edith, who had so far survived, could not even stand. The father's excuse was that his wife died seven years since and things had been "at sixes and sevens." He was bound over but his two daughters were sent to prison for six months each. Is the education that is promised in the future going to be more successful than that which we have had for more than 30 years past in training up children? Will it build up character and good citizenship more thoroughly than during the old order? If not, the omens for the future of the people, or for a large percentage of them, look discouraging.

## A WANT IN PUBLIC URINALS.

*To the Editor of* THE LANCET.

SIR,—Although the phrase "want to wash your hands" is a euphemism for urination, I have for years been struck with the want of opportunity for douching the hands at our public urinals where so much water runs to waste. I would urge on our great firms who manufacture earthenware for sanitary fittings, and upon sanitarians generally, the boon that one or two taps of running water for the purpose of rinsing the hands after micturition would be, especially when one reflects how many individuals, butchers, bakers, bankers, &c., who handle food, money, &c., suffer from local maladies and have no opportunity of hand ablution before handling goods, &c., on their rounds, office, &c. I have been moved to bring forward the above after reading Dr. D. S. Davies and Dr. I. Walker Hall's suggestions for "typhoid carriers" in THE LANCET of Nov. 28th, and trust my suggestion may attract the attention of our great pottery firms and those authorities who order their earthenware.

I am Sir, yours faithfully,

Dec. 7th, 1908. POUR LES HOMMES.

## A NEW EMPLOYMENT FOR LADIES AND GENTLEMEN.

THE following advertisement appeared in the *Morning Post* on Dec. 7th:—

> A QUALIFIED DENTAL SURGEON (West End) offers handsome Commission to any Lady or Gentleman introducing NEW PATIENTS; ledger may be inspected at completion of work; only good-class patients accepted; confidence and secrecy expected and given.—Address C., 01915, "Morning Post" Office, Strand, W.C.

This should attract the attention of others besides the ladies and gentlemen who are invited to act as touts for the advertiser and to earn a presumably secret commission by doing so.

## WANTED—A HOME.

*To the Editor of* THE LANCET.

SIR,—Can any of your readers recommend to me a home that would receive a woman 52 years of age suffering from rheumatoid arthritis deformans. She is quite able to do a useful amount of work, and 8*s.* a week would be found for her care.

I am, Sir, yours faithfully,

242, Westgate-road, Newcastle-on-Tyne, JAMES D. FARQUHARSON.
Dec. 2nd, 1908.

## HEALTH IN THE STRAITS SETTLEMENTS.

IN his annual report Mr. Arthur Young, Colonial Secretary, gives the population of the Straits Settlements as 619,796. The death-rate was 39·07 per 1000 and the birth-rate 26·11 per 1000 of the population. There were ten deaths from small-pox, 228 from cholera, 1626 from beri-beri, and 15 from plague. The stringent quarantine regulations and the vigilance of the medical and municipal authorities have hitherto prevented these scourges from finding a permanent home in the colony. The mean temperature of the air at Singapore was 80·6° F., at Penang 80·3°, and at Malacca 79·9°. The mean rainfall in Singapore was 81·25 inches, in Penang 87·53 inches, in Province Wellesley 76·78 inches, in the Dindings 53·21 inches, and in Malacca 71·35 inches. In spite of the high death-rate the climate in the towns and country cannot be considered unhealthy for Europeans, who, with their higher and more sanitary mode of life, can, if they take ordinary precautions, to a great extent avoid the malarial and other tropical fevers and dysentery which attack the Oriental inhabitants of the peninsula. Practically all the hospitals of the colony are

under Government management, while the estate hospitals maintained by the planters are under Government supervision. The number of patients treated in the hospitals in 1907 was 28,708, of whom 1193 were Europeans; the corresponding figures for 1906 were 27,340 and 1103 respectively. The deaths numbered 3688 (74 being Europeans). The inmates of the various leper hospitals, the majority of whom are quartered at Pulau Jerejak, numbered 389 at the close of the year as compared with 391 in 1906. 135 deaths occurred, as against 154 in 1906.

Messrs. Cadbury of Bournville have sent us some specimens of their confections, which are excellently prepared and packed in neat and artistic boxes. Good chocolates are appreciated by most people, both young and old, and are, moreover, safe sweetmeats.]

*Curious.*—We know of no work on mnemonics in connexion with medicine; every medical school has certain traditional mnemonics and some are common to many schools. As a rule, mnemonics are best when they are home made. The line to remind students of the order of the structures passing behind the internal malleolus is "Timothy doth vex all very nervous pupils." Timothy is supposed to refer to Mr. Timothy Holmes, who was, as a matter of fact, a kind as well as a just examiner, but who had an awe-inspiring manner.

*J. C.* (1)—To the best of our knowledge there is no preparation possessing the exact qualities desired. A dermatologist might be able to prescribe something that would be useful in a particular case but the symptom is not always dependent upon the same cause.

*Mr. J. Jacobs.*—Hospitals are compelled to make rules for the prevention of abuse and to assist them in their administrative work.

*R. F.*—The Students' Number of THE LANCET for 1906, under the heading The Student's Library, will give the information.

*Duplex.*—No; the numerous stories will not bear investigation, while the biological improbabilities are insuperable.

*J. C.* (2)—Our correspondent should put the matter before his medical adviser who might communicate with us.

*I. C. U.*—Certainly.

*T. T.*—Yes.

**COMMUNICATIONS not noticed in our present issue will receive attention in our next.**

# Medical Diary for the ensuing Week.

## SOCIETIES.

**ROYAL SOCIETY OF MEDICINE, 20, Hanover-square, W.**

THURSDAY.

DERMATOLOGICAL SECTION (Hon. Secretaries—Arthur Whitfield, E. G. Graham Little): at 4.15 P.M.

*Paper:*

Dr. Colcott Fox: Endothrix Trichophytic Flora in London (illustrated by a collection of cultures).

*Cases:*

Dr. Graham Little: (1) Favus of Scalp and Glabrous Skin; (2) Anomalous Pigmentation.

Dr. Whitfield: An Unusual Secondary Syphilide.

Dr. Wilfred Fox: (1) A Case of Lichen Planus treated with Soamin Injections, with Toxic Signs; (2) (with Dr. Freshwater): A Case of Syphilis "Secondaire Tardive."

Dr. J. M. H. MacLeod: A Case of Cicatricial Alopecia.

FRIDAY.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN (Hon. Secretaries—Hugh Lett, E. I. Spriggs, Harold J. Stiles): at 5 P.M. (Special Meeting).

*Discussion:*

Whooping-cough.

The following are expected to take part in the Discussion:—Dr. Carpenter, Dr. J. Walter Carr, Dr. Cautley, Dr. Leonard Guthrie, Dr. Newsholme, and Dr. Porter Parkinson.

ELECTRO-THERAPEUTICAL SECTION (Hon. Secretary—Reginald Morton): at 8.30 P.M.

Dr. Lake Hope (Brighton): The Value of Recent Improvements in Radiographic Technique.

Dr. William Martin (Newcastle-on-Tyne): The Biceps Tubercle and X Ray Examination—a Point of Medico-legal Value.

Dr. G. Harrison Orton (London) will open a Discussion on the X Ray Examination of the Accessory Sinuses of the Nose.

Dr. Horace Manders (London): Undamped Waves.

*N.B.—Fellows of the Society are entitled to attend and to speak at all Meetings.*

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY.—8.30 P.M., Discussion on Athletics in Relation to Disease (opened by Mr. R. H. A. Whitlocke (Oxford)). Sir Lauder Brunton, Bart., Dr. W. Collier (Oxford), Dr. A. Morison, and others, will take part in the discussion.

ROYAL SOCIETY OF ARTS, John-street, Adelphi, W.C.

WEDNESDAY.—8 P.M., Mr. P. McConnel: London Milk Supply from a Farmer's Point of View.

CHELSEA CLINICAL SOCIETY, Chelsea Dispensary, Manor-street, Chelsea, S.W.

TUESDAY.—8 P.M., Clinical Evening. Cases will be exhibited by the President (Dr. A. F. Penny), Mr. A. Baldwin, Dr. A. Eddowes, Mr. A. H. Greg, Dr. C. J. H. Gunning, Mr. J. H. Evans, Dr. E. Pritchard, Mr. C. Ryall, Mr. R. Thompson, and Dr. S. Taylor.

ROYAL MICROSCOPICAL SOCIETY, 20, Hanover-square, W.

WEDNESDAY.—8 P.M., Mr. J. E. Stead: (1) A Workshop Microscope for the Examination of Opaque Objects; (2) A Simple Method of Illuminating Opaque Objects.—Rev. E. Tozer: On Mounting Rotifers and Protista in Canada Balsam.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos-street, Cavendish-square, W.

FRIDAY.—8.30 P.M., Dr. W. C. Hossack: The Present Position of the Rat Flea Theory of Plague; Recent Observations in Calcutta.

## LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

MONDAY.—12 (noon), Prof. Shattock: Fibroma. (Museum Demonstration.)

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. S. E. Dore: Clinique (Skin). 5.15 P.M., Lecture:—Mr. M. Little: A Demonstration of Orthopædic Appliances.

TUESDAY.—4 P.M., Dr. A. Morison: Clinique (Medical). 5.15 P.M., Lecture:—Mr. J. E. Lane: The Treatment of Syphilis by Arylarsonates

WEDNESDAY.—4 P.M., Mr. T. Walker: Clinique (Surgical). 5.15 P.M., Lecture:—Mr. W. Stuart-Low: Nasal Obstruction, its Causes, Consequences, and Care.

THURSDAY.—4 P.M., Sir Jonathan Hutchinson: Clinique (Surgical). 5.15 P.M., Lecture:—Mr. R. Jones (Liverpool): The Treatment of Congenital Club Foot.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Surgical Registrar: Demonstration of Surgical Cases. 12 noon, Dr. Low: Pathological Demonstration. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Dunn: Diseases of the Eyes. 2.30 P.M., Operations. 5 P.M., Lecture:—Mr. Dunn: Cases of Diseases of the Eyes.

TUESDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Operations. Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Mr. Bidwell: The Causes of Disappointing Results after Gastro-enterostomy.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Diseases of the Throat, Nose, and Ear. 12.15 P.M., Lecture:—Dr. Pritchard: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. 2.30 P.M., Operations. 5 P.M., Lecture:—Dr. Beddard: Medicine.

THURSDAY.—10 A.M., Surgical Registrar: Demonstration of Surgical Cases. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Dunn: Diseases of the Eyes. 2.30 P.M., Operations. 5 P.M., Lecture:—Mr. Keetley: Clinical (with cases).

FRIDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. 12.15 P.M., Lecture:—Dr. Pritchard: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Operations. Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Mr. Pardoe: The Prophylaxis of Venereal Diseases.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. 2.30 P.M., Operations.

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.

MONDAY.—2 P.M., Operations. 2.15 P.M., Sir Dyce Duckworth: Medicine. 3.15 P.M., Mr. Turner: Surgery. 4 P.M., Mr. Lawrence: Ear and Throat. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat. 4 P.M., Special Lecture:—Mr. Lawrence: Hearing.

TUESDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Wells: Medicine. 3.15 P.M., Mr. Carless: Surgery. 4 P.M., Sir M. Morris: Diseases of the Skin. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.

WEDNESDAY.—2 P.M., Operations. 2.15 P.M., Dr. F. Taylor: Medicine. 3.30 P.M., Mr. Cargill: Ophthalmology. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.

THURSDAY.—2 P.M., Operations. 2.15 P.M., Dr. G. Rankin: Medicine. 3.15 P.M., Sir W. Bennett: Surgery. 4 P.M., Dr. Sale-Barker: Radiography. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat.

FRIDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Bradford: Medicine. 3.15 P.M., Mr. McGavin: Surgery. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.

SATURDAY.—2 P.M., Operations. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10 A.M., Surgical Out-patient (Mr. H. Evans). 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Nose, Throat, and Ear (Mr. H. W. Carson); X Rays. 4.30 P.M., Medical In-patient Clinic (Dr. A. J. Whiting).

TUESDAY.—Clinic: 10 A.M., Medical Out-patient (Dr. A. G. Auld). 2.30 P.M., Operations (Mr. Carson). Clinics:—Surgical Out-patient (Mr. W. Edmunds); Gynæcological (Dr. A. E. Giles). 4.30 P.M., Dr. R. M. Leslie: Recent Discoveries in Tuberculosis.

WEDNESDAY.—Clinics:—2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks). 4.30 P.M., Dr. S. J. Gilfillan: Demonstration of Cases of Mental Disease at the Colney Hatch Asylum, N.

THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. H. W. Carson); X Rays. 3 P.M., Medical In-patient (Dr. G. P. Chappel). 4.30 P.M., Lecture-Demonstration:—Dr. A. G. Auld: Methods of Diagnosis applicable to Abdominal Organs.

FRIDAY.—10 A.M., Clinic:—Surgical Out-patient (Mr. H. Evans). 2.30 P.M., Operations (Mr. W. Edmunds). Clinics:—Medical Out-patient (Dr. A. G. Auld); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie).

**ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, Leicester-square, W.C.**

THURSDAY.—6 P.M., Chesterfield Lecture:—Fungous Diseases (*continued*): (3) Favus; (4) Leptothrix.

**NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.**

TUESDAY.—3.30 P.M., Dr. G. Stewart: Spinal Caries.

**HOSPITAL FOR SICK CHILDREN (UNIVERSITY OF LONDON), Great Ormond-street, W.C.**

THURSDAY.—4 P.M., Lecture:—Mr. Collum: The Administration of Anæsthetics to Children.

## OPERATIONS.

### METROPOLITAN HOSPITALS.

**MONDAY (14th).**—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.).

**TUESDAY (15th).**—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.).

**WEDNESDAY (16th).**—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.).

**THURSDAY (17th).**—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.).

**FRIDAY (18th).**—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.).

**SATURDAY (19th).**—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospital operations are performed daily.

## EDITORIAL NOTICES

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

*It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.*

*Lectures, original articles, and reports should be written on one side of the paper only,* AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

*Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.*

*We cannot prescribe or recommend practitioners.*

*Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."*

*Letters relating to the publication, sale and advertising departments of* THE LANCET *should be addressed "To the Manager."*

*We cannot undertake to return MSS. not used.*

## MANAGER'S NOTICES.

### TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, London, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will insure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

THE COLONIAL AND FOREIGN EDITION (printed on thin paper) is published in time to catch the weekly Friday mails to all parts of the world.

The rates of subscriptions, post free, either from THE LANCET Offices or from Agents, are:—

| FOR THE UNITED KINGDOM. | | TO THE COLONIES AND ABROAD. | |
|---|---|---|---|
| One Year ... ... ... | £1 12 6 | One Year ... ... ... | £1 14 8 |
| Six Months ... ... ... | 0 16 3 | Six Months ... ... ... | 0 17 4 |
| Three Months ... ... ... | 0 8 2 | Three Months ... ... ... | 0 8 8 |

Subscriptions (which may commence at any time) are payable in advance. Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Manager, Mr. CHARLES GOOD, THE LANCET Offices, 423, Strand, London, W.C.

### TO COLONIAL AND FOREIGN SUBSCRIBERS.

SUBSCRIBERS ABROAD ARE PARTICULARLY REQUESTED TO NOTE THE RATES OF SUBSCRIPTIONS GIVEN ABOVE. It has come to the knowledge of the Manager that in some cases higher rates are being charged, on the plea that the heavy weight of THE LANCET necessitates additional postage above the ordinary rate allowed for in the terms of subscriptions. Any demand for increased rates, on this or on any other ground, should be resisted. The Proprietors of THE LANCET have for many years paid, and continue to pay, the whole of the heavy cost of postage on overweight foreign issues; and Agents are authorised to collect, and generally do so collect, from the Proprietors the cost of such extra postage.

The Manager will be pleased to forward copies direct from the Offices to places abroad at the above rates, whatever be the weight of any of the copies so supplied. Address—THE MANAGER, THE LANCET OFFICES, 423, STRAND, LONDON, ENGLAND.

## METEOROLOGICAL READINGS.

*(Taken daily at 8.30 a.m. by Steward's Instruments.)*

THE LANCET Office, Dec. 10th, 1908.

| Date. | Barometer reduced to Sea Level and 32° F. | Direction of Wind. | Rainfall. | Solar Radio in Vacuo. | Maximum Temp. Shade. | Min. Temp. | Wet Bulb. | Dry Bulb. | Remarks. |
|---|---|---|---|---|---|---|---|---|---|
| Dec. 4 | 30·29 | S. | ... | 46 | 46 | 37 | 36 | 37 | Overcast |
| ,, 5 | 30·25 | S.W. | 0·04 | 51 | 49 | 37 | 46 | 46 | Overcast |
| ,, 6 | 30·08 | S.W. | 0·01 | 50 | 48 | 43 | 46 | 47 | Raining |
| ,, 7 | 30·10 | N. | 0·15 | 47 | 44 | 42 | 42 | 42 | Overcast |
| ,, 8 | 29·99 | S.W. | ... | 69 | 50 | 38 | 42 | 44 | Fine |
| ,, 9 | 29·71 | S.W. | 0·15 | 54 | 48 | 43 | 43 | 43 | Overcast |
| ,, 10 | 29·20 | S. | 0·10 | 51 | 50 | 42 | 44 | 45 | Raining |

**During the week marked copies of the following newspapers have been received:**—*Birmingham Daily Post, South Wales Daily News, Manchester Evening News, Birmingham Evening Dispatch, Daily Mail, Daily Chronicle, Wigan Observer, Eastern Morning News, Norfolk Weekly Standard, Chelsea Mail, Grimsby Telegraph, Nature, Pall Mall Gazette, Nottingham Evening Post, Blackpool Gazette, Liverpool Post and Mercury, Wimbledon Gazette, Scientific American,* &c.

## Communications, Letters, &c., have been received from—

**A.**—Monsieur J. Astier, Asnières; Ardath Tobacco Co., Lond.; Dr. R. W. Allen, Lond.; Professor Dr. Albert Adamkiewicz, Vienna; The Ambora Soap Works, Lond.; Dr. J. Anderson, Pitlochry; Mr. G. H. Adam, West Malling; Mr. R. J. Albery, Lond.

**B.**—Dr. G. N. Biggs, Lond.; Mr. C. A. Ballance, Lond.; Dr. F. Booth, St. Anne's-on-the-Sea; Dr. Mildred M. Burgess, Lond.; Mr. Ernest W. Bobbett, Lond.; Messrs. Bedford and Co., Lond.; Messrs. Burroughs, Wellcome, and Co., Lond.; Mr. W. L. Byham, Sunbury-on-Thames; British Fire Prevention Committee, Lond., Assistant Secretary of; Mr. William Billington, Birmingham; Mr. T. B. Browne, Lond.; Mr. C. Birchall, Liverpool; Mr. E. H. Beaman, Normanton; Mr. W. G. Burcombe, Lincoln; Dr. H. D. Bishop, Guernsey; Mr. Clark Bell, New York; Dr. H. S. Birkett, Montreal; Messrs. Bertant Blanchard Frerès, Paris; Messrs. Blundell and Rigby, Lond.; Butcher's Advertising Agency, Plymouth; Mr. E. W. Blasius, Lond.

**C.**—Mr. S. Coppock, Blackpool; Mr. H. C. Collison, Lond.; Messrs. E. Cook and Co., Lond.; Messrs. J. and A. Churchill, Lond.; Messrs. Cadbury Bros., Bournville; Dr. Choksy, Bombay; Messrs. Cosenza and Co., Lond.; Cardiff Infirmary, Secretary of; Continental Tyre and Rubber Co., Lond.; Messrs. Carters, Lond.; Messrs. A. H. Cox and Co., Brighton; Miss Mary Clark, Birmingham; Mr. F. W. Clarke, Chorlton-cum-Hardy; Dr. A. Carrel, New York; Sir Watson Cheyne, Bart., Lond.; Dr. Curioni, Lond.

**D.**—Messrs. Down Bros., Lond.; Mr. Alexander Duke, Lond.; Dr. W. E. De Korte, Cape Town; Dr. D. S. Davies, Bristol; Messrs. Davies and Co., Lond.; Derbyshire Royal Infirmary, Derby, Secretary of; Mr. T. Dixon, Lond.; Messrs. S. Deacon and Co., Lond.; Messrs. F. Davidson and Co., Lond.

**E.**—Mr. F. W. Edwards, Lond.; Mr. George Elder, Nottingham; Mr. H. Elliot-Blake, Bognor; Mr. T. C. Easson, Baltimore.

**F.**—Dr. Theodore Fisher, Sidcup; Dr. J. M. Fortin, Remedios; Messrs. Ferris and Co., Bristol; Dr. Simon Flexner, New York.

**G.**—Dr. Alfred M. Gossage, Lond.; Dr. W. Gray, West Hartlepool; Gt. Eastern Railway Co., Lond., Continental Traffic Manager of; Professor P. Gasparini, Turin; Mr. W. D. Gittins, Liverpool; Messrs. W. and A. Gilbey, Lond.; G. A. C.

**H.**—Dr. C. F. Harford, Leyton; Dr. T. A. F. Hood, Blairgowrie; Haydock Lodge, Newton-le-Willows, Medical Superintendent of; H. M.; Lieutenant-Colonel E. A. W. Hall, I.M.S., Dacca; Mr. D. H. Hamaker, Bachmanville, U.S.A.; Messrs. Hempsons, Lond.; Professor W. D. Halliburton, Lond.; Mr. Noel A. Humphreys; Surbiton; Mr. J. A. Howell, Toronto.

**I.**—Mr. C. E. Iredell, Lond.; Indiarubber, Gutta Percha, and Telegraph Works, Lond., Secretary of; Imperial Accident Insurance Co., Lond., Managing Director of; Messrs. Ingram and Royle, Lond.

**J.**—Jeyes Sanitary Compounds Co., Lond., Secretary of; Mr. J. Jones, Lond.; Mr. J. Jacobs, Lond.; Mr. W. Judd, Lond.; *The Journal of the American Medical Association*, Chicago.

**K.**—Messrs. Kutnow and Co., Lond.; Dr. A. F. A. King, Washington, D.C.; K. L. S.; Professor W. W. Keen, Philadelphia.

**L.**—Mr. C. Lawrence, Lond.; Messrs. Lee and Nightingale, Liverpool; Loughborough, &c., General Hospital, Secretary of; London County Council, Clerk of; Mr. Ernest Leitz, Lond.; *Le Ferment*, Paris; Mr. J. P. Lee, Ripon; Local Government Board, Lond., Medical Officer of; Mr. Claude Lillingston, Lillehammer.

**M.**—Mr. W. C. Mayes, Gensan; Monkwearmouth and Southwick Hospital, Sunderland, Secretary of; Dr. R. O. Moon, Lond.; Medical Society of London, Registrar of; Merthyr Tydfil Education Committee, Clerk to the; Mr. J. Murray, Lond.; Messrs. C. Mitchell and Co., Lond.; Manchester Royal Infirmary, Secretary of; Messrs. McDougall Bros., Manchester; Manchester Corporation, Medical Officer of Health of; Messrs. J. Marshall, Sons, and Co., Glasgow; Maltine Manufacturing Co., Lond.; Messrs. Meister, Lucius, and Bruning, Lond.; Messrs. Muller, Maclean, and Co., Lond.; Mr. W. J. Midelton, Bournemouth; Mr. J. E. May, Lond.; Mr. J. C. Murphy, Kaballa; Dr. A. S. MacNalty, Lond.; Professor Middendorp, Brussels; Mr. W. Ernest Miles, Lond.; Manchester Medical Society.

**N.**—North London or University College Hospital, Acting Secretary of; Newcastle-upon-Tyne City Asylum, Clerk to the; Dr. David Newman, Glasgow; Dr. Newman Neild, Clifton; Mr. H. Needes, Lond.; Mr. J. C. Needes, Lond.

**O.**—Dr. Henry O'Neill, Belfast; The Oxford Eye Hospital, Hon. Secretary of; Mr. J. Offord, Cairo.

**P.**—Mr. F. H. Purchas, Surbiton; Dr. H. Cooper Pattin, Norwich; Mr. J. W. Prognell, Southsea; Mr. F. G. Parsons, Lond.; Messrs. Parke, Davis, and Co., Lond.; P. L.; Dr. T. S. P. Parkinson, Benton; Mr. Constant Ponder, Cambridge.

**Q.**—Queen's Hospital, Birmingham, Secretary of.

**R.**—Messrs. Rösing Bros., Lond.; Reeth Rural District Council, Clerk to the; Royal Southern Hospital, Liverpool, Secretary of; Messrs. Reitmeyer and Co., Lond.; Mr. R. Redpath, Newcastle-on-Tyne; Royal Albert Hospital, Devonport, Secretary of; Royal Society of Medicine, Lond., Section for the Study of Disease in Children, Hon. Secretary of; Royal Mail Steam Packet Co., Lond., Secretary of; Royal Institute of Public Health, Lond., Secretary of; Messrs. Ross, Lond.; Royal Academy of Medicine in Ireland, Dublin.

**S.**—Dr. B. B. Sapwell, Aylsham; Dr. Thos. D. Savill, Lond.; Messrs. G. Street and Co., Lond.; Southport Education Committee, Clerk to the; Dr. A. Saunders, Lond.; Messrs. Sharpe, Green, and Son, Liverpool; Messrs. Smith and Wellstood, Glasgow; Star Engineering Co., Wolverhampton; Messrs. Slack and Cox, Manchester; Messrs. J. Sommerville and Co., Edinburgh; The "Spiers" Service Advertising Agency, Lond.; Mr. J. Lionel Stretton, Kidderminster; Société Anonyme des Eaux Minérales d'Evian-les-Bains, Directeur of; Dr. E. I. Spriggs, Lond.; Messrs. Savory and Moore, Lond.; Dr. A. Shehadi, El Obeid; Scholastic, Clerical, &c., Association, Lond.

**T.**—Mr. A. R. Tweedie, Nottingham; Sir J. Tweedy, Lond.; Mr. W. Pugin Thornton, Broadstone; Mr. T. Tulloch, Lond.; Dr. H. Theodore Thompson, Lond.; Trinidad and Tobago, Surgeon-General of; Messrs. Truelove and Hanson, Lond.; Rev. W. C. Tuting, Helston; Dr. J. C. Thresh, Chelmsford; Mr. A. H. Tubby, Lond.

**U.**—University of London, Principal of; Dr. A. Urquhart, Perth; University of Liverpool, Dean of the Faculty of Medicine of; University of Birmingham, Faculty of Medicine, Dean of.

**V.**—Mr. T. Bowater Vernon, Lond.; Mr. A. Vinson, Kingston.

**W.**—Mr. F. F. White, Lond.; Captain Geoffrey Wilkinson, Lond.; Mr. T. H. Wyatt, Lond.; Mr. W. H. Willcox, Lond.; Messrs. A. J. Wilson and Co., Lond.; Dr. Sim Wallace, Lond.; Messrs. J. Wright and Sons, Bristol; Mr. A. Wander, Lond.; Mr. J. P. Wightman, York; West Ham, &c., Hospital, Secretary of; W. J. M.; Dr. Tom A. Williams, New York; Dr. Edward Walker, Huddersfield; Mr. R. Prosser White, Wigan; Mr. W. I. de C. Wheeler, Dublin.

## Letters, each with enclosure, are also acknowledged from—

**A.**—Mr. W. L. Ascherson, Lond.; Dr. B. Anningson, Cambridge; Dr. A.; A. F.; A. H. B.; A. F. M.; The Apollinaris Co., Lond.

**B.**—Mr. C. E. Baker, Lond.; Mr. N. M. Barron, Lincoln; Dr. G. B. Buchanan, Glasgow; Messrs. Bates, Hendy and Co., Lond.; Blaenavon Workmen's Doctors' Fund, Secretary of; Blackburn, &c., Infirmary, Secretary of; B. B. F.

**C.**—Dr. S. G. Corner, Coggeshall; Messrs. H. Chaplin and Co., Lond.; Mr. F. R. Cave, Torquay; C. C. S.; Cheadle Royal, Cheshire, Secretary of; C. W. G.; Crooksbury Sanatorium, Farnham, Medical Superintendent of; Mr. R. Cummins, Felling-on-Tyne; Mr. H. C. D. Cross, Wigton.

**D.**—Dr. E. Decina, Naples; D. W.

**E.**—Mr. A. S. Edward, Puckeridge; Mr. F. G. Ernst, Lond.; Mr. J. Elston, Hyères.

**F.**—Mr. W. Foreman, Liverpool; Messrs. Findlater, Mackie, Todd, and Co., Lond.; Dr. J. H. Fox, Lond.; F. H.

**G.**—Messrs. Gould and Portman, Lond.; G. M. S.; G. A. H.; Messrs. Grindlay and Co., Lond.

**H.**—Mr. W. B. Harris, Quorn; Dr. J. B. Hurry, Reading; Mr. A. L. Haines, Gloucester; Dr. A. R. Henchley, Canterbury; Dr. C. A. Hill, Hoylake; Messrs. J. Haddon and Co., Lond.; H. G. W.; Messrs. Hornecastle, Lond.; Mr. C. C. Hickey, Kilkee; Messrs. Hyam and Co., Lond.

**I.**—Incorporated Institute of Hygiene, Lond., Secretary of; Mr. A. Ireland, Turks Island; Invernith Lodge Retreat, Colinsburgh, Medical Superintendent of.

**J.**—Jenner Institute for Calf Lymph, Lond., Secretary of; J. H.; J. J. W.; J. D. W.

**K.**—Dr. L. S. Keegan, St. John's, Newfoundland.

**L.**—Mr. E. A. Lindsay, Isfield; London University, Accountant of; Dr. C. L. Lakin, Lond.; Mr. R. W. Lindsay; Buchlyvie; Mr. T. Llewellyn, Ogmore Vale; L. W. K. T.; "Locum," Sunderland.

**M.**—Mr. T. Messenger, Kirkbride; Mr. E. G. de Mattos, Lond.; Dr. A. Mahood, Boscombe; Mr. G. Muller, Philadelphia; M. J. O. B.

**N.**—North Devon Infirmary, Barnstaple, Secretary of.

**O.**—Baron de Oliveira, Lond.

**P.**—Mr. H. J. Price, Maldon; Dr. W. Pasteur, Lond.; Messrs. J. Patterson and Sons, Liverpool; Dr. F. W. Pavy, Lond.; Mr. M. Pegge, Lond.; Mr. R. W. Porter, Manchester.

**R.**—Royal Alexandra Hospital for Children, Brighton, Secretary of; R. W. J.; R. H. S.

**S.**—Dr. F. E. Shipway, Lond.; Mr. G. Steinheil, Paris; Mr. J. Geddes Scott, Funchal; Smith's Advertising Agency, Lond.; S. C. H.; Messrs. Spencer and Co., Leicester; *South Wales Argus*, Newport, Manager of; Messrs. Spiers and Pond, Lond.

**T.**—Dr. F. G. Thomson, Bath; T. W. S.; Mr. W. H. Thomas, Bath; Messrs. E. Toombs and Co., Lond.; T. W. H.; Mr. J. Thin, Edinburgh.

**W.**—Dr. R. P. White, Wigan; Dr. C. Walker, Liverpool; Mr. G. Whitfield, Birmingham; West Hall Hydro, Bournemouth, Secretary of; Mr. W. F. A. Walker, Dinas Mawddwy; Mr. J. P. Watson, Lond.; W. H. D.; W. F. K.; W. H. B.; *West Somerset Free Press*, Williton, Proprietors of.

**Y.**—Dr. W. Yorke, Blantyre.

EVERY FRIDAY.

# THE LANCET.

PRICE SEVENPENCE.

SUBSCRIPTION, POST FREE.

| FOR THE UNITED KINGDOM. | | TO THE COLONIES AND ABROAD. | |
|---|---|---|---|
| One Year ... ... ... | £1 12 6 | One Year ... ... ... | £1 14 8 |
| Six Months ... ... ... | 0 16 3 | Six Months ... ... ... | 0 17 4 |
| Three Months ... ... | 0 8 2 | Three Months ... ... | 0 8 8 |

Subscriptions (which may commence at any time) are payable in advance.

ADVERTISING.

| | | |
|---|---|---|
| Books and Publications ... | Seven Lines and under | £0 5 0 |
| Official and General Announcements | Ditto | 0 5 0 |
| Trade and Miscellaneous Advertisements and Situations Vacant ... ... | Ditto | 0 4 6 |
| | Every additional Line | 0 0 6 |

Situations wanted: First 30 words, 2s. 6d.; per additional 8 words, 6d.
Quarter Page, £1 10s. Half a Page, £2 15s. An Entire Page, £5 5s.

Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Manager, Mr. CHARLES GOOD, THE LANCET Office, 423, Strand, London, to whom all letters relating to Advertisements or Subscriptions should be addressed.

THE LANCET can be obtained at all Messrs. W. H. Smith and Son's and other Railway Bookstalls throughout the United Kingdom. Advertisements are also received by them and all other Advertising Agents.

**Agent for the Advertisement Department in France—J. ASTIER, 31, Rue Bapst, Asnières, Paris.**